

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 5,7 e

1. Edition

En

PES 6 A 75 D 410/3 RS 1197
Komb.-Nr. 0 400 466 045

RSV 325-1150 A8B 494-1 L

supersedes
company KHD
engine F 6 L 912

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1130	10,5+0,1	4,4-4,5	0,2(0,35)			
325	8,4-8,6	0,8-1,4	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-,0,7				ca. 18	325	8,0	1130	10,5-10,6
	x = 4,8						100	min. 19,5	500	11,5-11,6
ca. 51	9,5	1170-1180					325	8,4-8,6	930	10,9-11,1
(2a)	4,0	1220-1250					455-515=2,0			
	1385	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop		(6) Rotational-speed limit Note changed to) rev/min	(3a) Fuel delivery characteristics		(5) Starting fuel delivery Idle rev/min	(4a) Idle stop Control rod travel mm	
Test oil temp 40°C (104°F)	rev/min cm³/1000 strokes		4	5 cm³/1000 strokes			8
1130	43,5-44,5 (42,0-46,0)	1170-1180*	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 MWM 3,9 b 2

1. Edition

En

PES 4 A 80 D 320 RS 1282 RSV 350-1100 A 2 B 2129-6 R

Komb.-Nr. 9 400 085 257

supersedes -
company MWM
engine D 229-4



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,20-2,30
Port closing at prestroke (2,15-2,35) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	8,7+0,1	4,9-5,0	0,25(0,4)			
350	6,4-6,6	1,0-1,3				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	④ Control-lever deflection in degrees 7	Lower rated speed rev/min 8	Control rod travel mm 9	③ Torque control rev/min 10	Control rod travel mm 11	
loose	800	0,3-1,0	-	-	-	ca.21	350	6,0	1100	8,7-8,8	
	$x = 4,25$						100	min.19,0	500	10,0-10,1	
ca.44 ②a	7,7	1140-1150					350	6,4-6,6	900	9,1-9,4	
	4,0	1180-1210					590-650	= 2,0			
	1300	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F) rev/min 1	⑥ Rotational-speed limit. Note changed to ... rev/min 3	③a Fuel delivery characteristics rev/min 4	Starting fuel delivery idle rev/min 6	⑤ Idle stop cm³/1000 strokes 7	④a Idle stop Control rod travel mm 8
1100	48,5-49,5 (47,0-51,0)	1140-1150*	500 900	50,0-52,0 (48,0-54,0) 49,0-51,0 (47,0-53,0)	100 - - -

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 1 g 17

2. Edition

En

PES 4 A 80 D 410/3 RS 1300 RSV 325-1175 A 8 C 657-1 L

Komb.-Nr. 0 400 464 129

supersedes 5.85

KHD

company F 4 L 912

engine tractor DX 3.70

TestOil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery	Spring pre-tensioning (torque-control valve) mm
		1	2	3	4	5	6
1175	10,8+0,1	5,8-5,9	0,25(0,4)	0,2 (0,3)			
325	8,4-8,6	1,1-1,7					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel rev/min	4	5	6		7	8	9	10
oose	800	0,3-1,0	-	-	-	ca. 17	325	8,0	1175	10,8-10,9
	X = 4,0						325	8,4-8,6	500	11,5-11,6
ca. 51	9,8	1215-1225					445-505	=2,0	1025	11,1-11,3
2a	4,0	1260-1290								
	1400	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat Note changed to .. rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5 Idle stop rev/min	4a Control rod travel mm	
		rev/min	cm³/1000 strokes				
175	58,0-59,0 (56,5-60,5)	1215-1225*	800	56,0-58,0 (54,0-60,0)	100	120,0-130,0 (117,0-133,0) =19,5-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 5,7 II 13

1. Edition

En

PES 6 A 90 D 410 RS 2293
Komb.-Nr. 9 407 083 270

RQV 300-1425 AB 740-1 L

supersedes
company Daimler-Benz
engine OM 352
118 kW

TestOil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1380	11,0+0,1	7,1-7,2	0,3(0,5)			
300	7,4-7,6	1,0-1,6				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	7	8	9	10	11
max.	1400	15,2-17,8	-	-	-	ca. 14	100	min. 9,0	250	0,5-0,7
ca. 58	10,0	1400-1410					300	7,4-7,6	640	3,2-3,6
	4,0	1520-1555					800	max. 1,0	1035	5,6-5,8
	1660	0-1,0							1425	8,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	7
1380	71,0-72,0 (69,5-73,5)	1400-1410*	500	54,0-56,0 (52,0-58,0)	100	71,0-81,0 =13,7-14,1 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 6,1 g

6. Edition

En

Testoil-ISO 4113

PES 6 A 85 D 410/3 RS 2415
Komb.-Nr. 0 400 856 024

RQ 300/1250 AB 935 DL

supersedes 9.85
company: KHD
engine: BF 6 L 913 T
96 kW
2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,1+0,1	8,0 - 8,1	0,3(0,45)			
300	8,3-8,5	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	
1	3	4	5	7	8	9	10	11	12	13	
800	19,2-20,8	800	20,0	11,1	1295-1310	300	8,4	100	min. 9,8	1250	12,1-12,2
VH = max. 46°				4,0	1370-1400			300	8,3-8,5	800	13,3-13,4
				1500	0 - 1,0			570-610=2,0		910	13,0-13,2
										1050	12,4-12,7

Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation, At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	
1	2	3	4	5	6	7	8	
1250	80,0 - 81,0 (78,0 - 83,0)	-	800	85,0-87,0 (82,5-89,5)	100	105,0-115,0 (102,0-118,0)		

Checking values in brackets

11.85

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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 9,2 a 3

1. Edition

En

PES 5 A 95 D 410 LS 2426 RQV 250-1150 AB 850 DL

Komb.-Nr. 0 400 845 013 = MAN-Nr. 1-7619

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company MAN
D 2555 MX/MXF
engine 141 kW/2300 min⁻¹



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,3-1,4

Port closing at prestroke

(1,25-1,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	1a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	1	rev/min 10	mm 11
ca. 50	1170	14,4-17,4		-	-	-		ca. 13	50	7,7-11,0	200	0,5-1,2	
	1220	9,0-14,0							150	6,6- 9,8	480	3,2-4,0	
	1280	1,0- 7,8							250	4,2- 7,2	800	5,0-5,4	
	1350	0							350	0 - 3,4	1180	8,4	
									410	0			

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel mm 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	rev/min 5	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	rev/min 9
1150	114,5-116,5 (112,5-118,5)	1190-1205*	800	114,0-117,0 (112,0-119,0)	max. 113,5 (max. 115,5)	100	146,5-156,5	1100	-
			500			250	7 mm RW Change-over point 180-100 min ⁻¹	500	0,3-0,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 9,2 a 4

1. Edition

En

PES 5 A 95 D 410 LS 2426 Z RQV 250-1150 AB 850 DL

Komb.-Nr. 0 400 845 021 = MAN-Nr. 1-7555

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes-

company: MAN

engine: D 2555 M/MF
124 kW/2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,3-1,4
(1,25-1,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever	Control rod travel rev/min	Intermediate rated speed Degree of deflection of control lever	Control rod travel rev/min	Lower rated speed Degree of deflection of control lever	Control rod travel rev/min	Sliding sleeve travel rev/min
1	2	3	4	5	6	10
ca. 50	1170	14,4-17,4	-	-	50	0,5-1,2
	1120	9,0-14,0			150	3,2-4,0
	1280	1,0- 7,8			250	5,0-5,4
	1350	0			350	8,4
					410	

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min
1	2	3	4	5
1150	109,5-111,5 (107,5-113,5)	1190-1205*	800 500	146,5-156,5 =15,7-16,3 mm RW 250 7 mm RW Change-over point 180-100 min ⁻¹

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 15,8 b

3. Edition

En

Testoil-ISO 4113

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1129 L

Komb.-Nr. 0 400 649 223
1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

0 - 27-72 -99 -144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes 4.85
company: KHD
engine: F 10 L 413 F
228 kW (310 PS)
2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,1 - 9,3	0,3(0,6)			
	6,4-6,6	1,2 - 1,6	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in □.

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	mm 11
max.	1380	15,2-17,8	-	-	-	ca. 18	100	min.8,0 300 6,4-6,6	300 500 1000 1300 1380	1,2-1,3 5,6-2,9 5,4-5,6 7,7-7,8 8,7
ca.51	9,3 4,0 1500	1290-1300 1375-1405 0 - 1,0								

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics high idle speed 4a	Starting fuel delivery idle switching point 5a	Torque-control travel Control rod travel mm 5
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	rev/min 8
1250	90,5 - 92,5 (88,5 - 94,5)	1290-1300 *	800	1250

Checking values in brackets

* 1 mm less control rod travel than col. 2

10,85

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 6,1 e 2

1. Edition

En

PES 6 A 95 D 410 RS 2471
Komb.-Nr. 0 400 876 330

RSV 325-1400 A2C 2205 L

supersedes KHD
company BF 6 L 913 C
engine 125,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9-2,0

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	10,9+0,1	8,8-9,0	0,35(0,6)			
325	7,5-7,7	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min			Intermediate rated speed			4	Lower rated speed			3	Torque control	
	Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6		Control lever deflection in degrees	rev/min	Control rod travel mm		Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11			
loose	800	0,3-0,7	-	-	-	ca. 22	325	7,1	1400	10,9-11,0			
	x = 4,0						100	min. 19,5	500	10,9-11,1			
ca. 58	9,9	1440-1450					325	7,5-7,7					
(2a)	4,0	1545-1575					625-685=2,0						
	1675	0,3-1,4											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitat.		3a	Fuel delivery characteristics		5	4a	Idle stop	
	Test oil temp. 40°C (104°F)	rev/min cm³/1000 strokes		Note changed to ... rev/min	4		rev/min cm³/1000 strokes	6			rev/min cm³/1000 strokes	9
1	2	3	4	5	6	7	8	9				
LDA 1400	0,7 bar 88,0-90,0 (86,0-92,0)		LDA 850	0,7 bar 78,5-81,5 (76,0-84,0)		100	115,0-125,0 (112,0-128,0) = 15,6-16,0 mm RW					
			LDA 650	0 bar 64,0-66,0 (62,0-68,0)								

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e 2

- 2 -

Test at n = 500 rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution difference (1)
	bar	bar	mm
PES 6 A..RS 2471 + A2C 2205 L	0,7	0 0,22 0,18	10,9-11,1 10,2-10,3 10,7-10,8 10,5-10,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WWP 001/4 MAN 9,2 f 1
2. Edition

En

PES 5 A 95 D 320 LS 2504
Komb.-Nr. 0 400 845 079

RQ 250/1100 AB 1197 R

supersedes 2.85

company: MAN

engine: D 2565 MUL

141 kW/2200 min⁻¹

MAN-Nr. 2-7500

1-3-5-4-2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 - 1,6 mm (from BDC)
(1,45-1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1 100	11,3+0,1	11,4-11,6	0,3(0,6)			
250	6,4-6,6	1,5-2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1	Setting point Control rod travel rev/min 3	Full-load speed regulation			Idle speed regulation			Torque control		
		Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point Control rod travel mm	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm	
600	15,6-16,4	600	16,0	10,3 4,0 1300	1145-1160 1195-1225 0-1,0	250	6,5 250 370	100 6,4-6,6 410=2,0	min. 8,0 6,4-6,6 410=2,0 1100 600 940 1015	11,3-11,4 11,7-11,8 11,5-11,7 11,4-11,6

Torque-control travel
on flyweight assembly dimension a = 0,40 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	Control rod travel mm
1100	114,0-116,0 (112,0-118,0)	-	800 500	115,5-118,5 (113,0-121,0) 113,0-116,0 (110,5-118,5)	100 250	147,0-157,0 (144,0-160,0) = 13,7-14,3 mm RW 6,5 mm RW	6

Checking values in brackets

11.85

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DEE 7,6 c 2

1. Edition

En

PES 6 A 95 D 410 RS 2522
Komb.-Nr. 9 400 230 014

US-EP/RSV 400-1100 A2B 2055 DL supersedes

company John Deere
engine 6466 T

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,85-1,95
(1,80-2,00) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	10,5+0,1	10,1-10,3	0,3 (0,6)			
400	5,9-6,1	1,2-1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	10	Control rod travel mm	11
loose	800	0,3-1,0	-	-	-	ca. 22	400	5,5	1100	10,5+0,1	
	X =						100	min. 19,0	650	11,7+0,1	
ca. 43	9,5	1150					400	5,9-6,0			
	5,2	1200					650-680	= 2,0			
2a	1350	0-1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit Note changed to 1 rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
LDA 1100	0,8 bar 100,5-102,5 (98,5-104,5)	1150*	LDA 650	0,8 bar 112,5-115,5 (110,5-117,5)		100	165,0-185,0 = 19,0-21,0 mm RW	400	6,0
			LDA 550	0 bar 86,0-92,0 (84,0-94,0)		400	12,0-16,0 (10,0-18,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 c 2

- 2 -

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-diminution difference	
					mm	(1)
PES 6 A..RS 2522 + RSV..A2B2055DL	0,24		0,10		11,3-11,4 10,4-10,8	

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps ①A

and Governors

40

WPP 001/4 KHD 4,1 c 5

1. Edition

En

PES 4 A 80 D 410/3 RS 2523 RSV 325-900 A 1 C 602-2 L
Komb.-Nr. 0 400 864 064

supersedes -
company KHD
engine F 4 L 913
43,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0
(1,85-2,05) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery		Spring pre-tensioning (torque-control valve) mm
		2	3 cm³/100 strokes			2	3 cm³/100 strokes	
880	12,2+0,1	5,1 - 5,2	0,25 (0,4)	0,2 (0,35)				
	9,3-9,5	0,9 - 1,5						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min	Control rod travel mm 10
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-0,7	-	-	-	ca. 23	325	8,0	-	-
	X	= 3,25					325	7,9 - 8,1		
ca. 46 ②a	11,2	920-930					350	10 = 2,0**		
	4,0	955-985					1110	0,3-1,4		

** Set idle-speed auxiliary spring at 2 mm control-rod travel.
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat Note: changed to 1 rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle	⑤	④a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9
880	50,5 - 51,5 (49,0 - 53,0)	920-930 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6,1 d

5. Edition

En

Testoil-ISO 4113

PES 6 A 80 D410/3 RS2527 EP/RSV 325-1150 A8 B2014DL
Komb.-Nr. 0 400 866 084 A8 C2014 L

supersedes 1.85

company: KHD

engine: F6 L912

74kW (102PS)

2300 min⁻¹

tractor DX 110 - S 31

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,90-2,00

(1,85-2,05)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,8+0,	5,6 - 5,7	0,2(0,35)			
325	8,9-9,1	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control		
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-0,7				ca. 21	325	8,5	1150	11,8+0,1	
	x =						325	8,9-9,1	950	12,0+0,2	
ca. 56	10,8	1190-1200					490-550	= 2,0	775	12,5+0,2	
	4,0	1255-1285							450	12,5+0,2	
	1350	0,3-1,4									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.		(3a) * Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: charged to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	9
1150	56,0 - 57,0 (54,5 - 58,5)	1190-1200 *	775	54,0 - 56,0 (52,0 - 58,0)	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

WPP 001/4 KHD 6,1 d 1
2. Edition

En

PES6A 85D 410 RS 2537 RSV 325-1150 A8B2020 DL
Komb.-Nr. 0 400 876 270 A8C2020 DL

supersedes 2.84
company KHD
engine BF 6 L 913
97 kW/2300 min⁻¹ (1)
tractor DX145-S15
107kW/2300 min⁻¹ (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

TESTO 411
BOSCH

Port closing at prestroke		1,9 -2,0 (1,85-2,05)	mm (from BDC)			
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	11,0+0,1	8,0-8,2	0,3(0,45)			
325	6,8-7,0	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca.21	325	5,0		
ca.55	10,0	1190-1200					100	min.19,5		
(2a)	4,0	1225-1255					325	5,4- 5,6		
	1350	0,3-1,7					510-570	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(1)	2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limitat Note changed to rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop	
	rev/min	cm ³ /1000 strokes		4	5			6	7
LDA	0,7 bar	1190-1200*	LDA	0,3 bar		100	120,0-130,0	-	-
1150	77,0-78,0 (75,0-80,0)		650	77,0-79,0 (74,5-81,5)					
LDA	0,5 bar		LDA	0 bar					
800	78,0-81,0 (75,5-82,5)		500	61,0-63,0 (58,5-65,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

10,85

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B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 24	325	6,4	1150	11,0+0,
	x =	6,0					100	min 19,5	960	11,7+0,2
ca. 60	10,0	1190-1200				325	6,8-7,0	590-650	= 2,0	500 12,5+0,1
(5)	4,0	1270-1300								
	1435	0,3-1,4								

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational speed limitation	(3a) Fuel delivery characteristics		Starting fuel delivery		(5a) Idle stop		
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	idle	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
(2) LDA 1150	0,7 bar 79,5 - 81,5 (77,5 - 83,5)	1190-1200*	LDA 800	0,7 bar 88,0 - 91,0 (86,0 - 93,0)	100	120,0-130,0 (117,0-133,0) = 17,4-18,0 mm RW		-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**D. Adjustment Test for Manifold Pressure Compensator**

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure (g.p.)

Pump/governor	Setting (g.p.)	Measurement bar (g.p.)	Control rod travel mm (1) XX difference XXXXX
2537 mit 2020DL	0,70	0,37 0,09 0	12,5 - 12,6 12,2 - 12,3 10,5 - 10,9 10,6 - 10,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 HAN 10,8 f 1

2. Edition

En

PE 4 A 95 D 420 RS 2556 RSV 350-1100 A 8 B 1120 R
Komb.-Nr. 0 400 674 042 A 8 C 1120 R

supersedes 12.83
company MF-Hanomag
engine D 943

1-2-4-3 je $90^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

** Cold-start test according to VDT-I-420/114

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1100	10,0+0,1	9,3-9,5	0,3 (0,6)			
400	7,9-8,1	4,0-5,0	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4		rev/min	Control rod travel mm		
loose	800	0,3-1,0	-	ca. 21	400	7,5	1100	10,0-10,1
	x = 3,75		-		100	min. 19,0	1005	10,4-10,6
ca. 52	9,0	1140-1150			400	7,9-8,1	500	10,9-11,0
②a	4,0	1205-1235			580-640	=2,0		
	1345	0,3-1,7			600	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	⑥ Rotational-speed limit Note changed to rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle rev/min	⑤ Idle stop Control rod travel mm	④a Control rod travel mm	
			4	5 cm³/1000 strokes				
1100	93,0-95,0 (91,0-97,0)	1140-1150*	700	100,0-103,0 (98,0-105,0)	100	19,5-21,0 mm RW	-	-
			500	92,0-94,0 (90,0-96,0)		**		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 HAN 10,8 i 1

2. Edition

En

PE 6 A 95 D 320 RS 2557

RSV 350-1100 A8B1127 R

supersedes 9.83

A8C1127 R

company ME-Hanomag

Komb.- Nr. 0 400 676 159

engine D 963 A/1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

^{2,15-2,25}

(2,10-2,30)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,2+0,1	12,4-12,5	0,3(0,6)			
350	6,6-6,8	1,4- 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca.19	350	6,2	1100	13,2-13,3
	X = 3,75						100	min. 19,5	450	13,2-13,4
ca.50 2a	12,2	1140-1150				350	6,6-6,8	400	13,5-13,9	
	4,0	1220-1250				470-530	= 2,0			
	1370	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8
1100	124,0-125,0 (122,0-127,0)	1140-1150*	500	118,0-121,0 (115,5-123,5)	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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10.85

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 9,6 n 1

1. Edition

En

PE 6 A 95 D 410 LS 2587
Komb.-Nr. 0 400 646 266

RQV 300-1150 AB 1088 L

supersedes -

company KHD

engine F 6 L 413 FW

102,0 kW; 2300 min⁻¹

Tunnelling or mining vehicles

1- 6- 5- 4- 3- 2
0-75-120-195-240-315° ± 0,50° (+ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke
1,50-1,60
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,0-9,2	7,8 - 8,0	0,3(0,6)			
300	6,2-6,3	1,4 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed			Lower rated speed Degree of deflection of control lever 7	rev/min Control rod travel mm 8	Sliding sleeve travel rev/min mm 10	rev/min mm 11
			Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6				
ca. 68	1150	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	300 1,2-1,3
	1350	0 - 1,0					300	5,9-6,1	600 3,1-3,4
ca. 64	8,0	1190-1200				320-400	610-670	=2,0	1190 8,5
	4,0	1220-1250				(3a)			

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed rev/min	Fuel delivery characteristics high idle speed rev/min	Starting fuel delivery idle switching point rev/min	Torque-control travel Control rod travel mm
1	2	3	4	5	6
1150	77,5-79,5 (75,5-81,5)	1190-1200 *	800	80,5-82,5 (79,0-84,0)	100 119,0-129,0 1150 9,0+0,1 800 9,5+0,1 500 9,5+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Set control-rod stop to contact at 500 min/1

10.85

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 n 1

40

1. Edition

En

PE 8 A 95 D 410 LS 2588
Komb.-Nr. 0 400 646 124

RQV 300-1150 AB 1088 L

supersedes -

company: KHD

engine: F 8 L 413 FW

136,0 kW; 2300 min⁻¹

Tunnelling or mining vehicles

1- 8- 7- 2 - 6 - 5 - 4 - 3
0-45-90-135-180-225-270-315° ± 0,50° (+ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke
1,50-1,60
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,0-9,2	7,8 - 8,0	0,3(0,6)			
300	6,2-6,3	1,4 - 2,0				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed Degree of deflection of control lever 4	Control rod travel rev/min 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 8	Sliding sleeve travel rev/min 10	Sliding sleeve travel mm 11
max.	1150	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	300
ca. 64	8,0	1190-1200					300	5,9-6,1	600
	4,0	1220-1250					610-670	=2,0	1190
	1350	0 - 1,0				320-400			
						3a			

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5a	Starting fuel delivery idle switching point 6	Torque-control travel Control rod travel mm 5
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 6	rev/min 8
			cm ³ /1000 strokes 5	cm ³ /1000 strokes 7
1150	77,5-79,5 (75,5-81,5)	1190-1200*	800	80,5-82,5 (78,5-84,5)
			100	119,0-129,0
				1150 9,0+0,1 800 9,5+0,1 500 9,5+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Set control-rod stop to contact at 500 min/1

10.85

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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 15,8 n 1

1. Edition

En

PE 10 A 95 D 610/4 LS 2589 RQV 300-1150 AB 1047 DL
Komb.-Nr. 0 400 049 219

supersedes -
company KHD
engine F 10 L 413 FW
170 kW; 2300 min⁻¹

1-10- 9- 4- 3- 6- 5- 8- 7- 2
0-27-72-99-144-171-216-243-288-315° ± 0,50° + (0,75°)



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60
(1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	9,1+0,1	7,9 - 8,1	0,3(0,6)			
300	6,2-6,3	1,4 - 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in _____

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	18	4	5	4	7	8	10	11
max.	1150	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	300	1,2-1,3
ca. 64	8,0	1190-1200				320-410	300	6,2-6,3	600	3,1-3,4
	4,0	1230-1260					620-680	=2,0	1190	8,5
	1350	0 - 1,0								

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min
1	2	3	4	6	8
1150	78,5-80,5 (76,5-82,5)	1190-1200 *	800	83,0-85,0 (80,5-88,5)	100
					116,5-126,5 (113,5-129,5)
					1150
					500
					895
					1030
					9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 1 g 12

2. Edition

En

PES 6 A 85 D 410 RS 2591 RSV 325-1150 A 8 C 2020
Komb.-Nr. 0 400 876 320

supersedes 10.84

company KHD

engine BF 6 L 913
117 kW/2300 min⁻¹
tractor DX 7.10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings



Port closing at prestroke 2,5 - 2,6 (2,45-2,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	12,4+0,1	8,6 - 8,7	0,3(0,45)			
325	7,4-7,6	1,0 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	7	8	9	10
loose	800	0,3-0,7	ca. 25	325	7,0	1200
	x = 6,0			100	min. 19,5	500
ca. 63 2a	11,4	1240-1250		325	7,4-7,6	925
	4,0	1350-1380		620-680	= 2,0	12,9-13,1
	1515	0,3 - 1,4				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	rev/min cm³/1000 strokes	6	7	8	9
LDA 1200	0,7 bar 85,5-86,5 (83,5-88,5)	1240-1250*	LDA 500	0 bar 65,0-67,0 (63,0-69,0)	100	110,0-120,0 107,0-123,0	0 -	-	-

Checking values in brackets

* 1 mm less control rod travel than cat. 2

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D. Adjustment Test for Manifold Pressure Compensator

KHD 1 g 12

- 2 -

Test at n = 500 rev/min decreasing pressure in bar gauge pressure increasing

Pump/governor	Setting	Measurement		Control rod travel mm	diminution difference (1)
		Gauge pressure = bar	Gauge pressure = bar		
PES 6 A..RS2591 +RSV..A 8 C 2020	0,70	0		13,5 - 13,6	
		0,28		12,2 - 12,3	
		0,11		13,2 - 13,3	
				12,6 - 12,8	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 n 2

1. Edition

En

PE 12 A 95 D 610 LS 2590
Komb.-Nr. 0 400 640 107

RQV 300-1150 AB 1047 DL

supersedes -

company: KHD

engine: F 12 L 413 FW
204 kW; 2300 min⁻¹

1- 4- 9- 8- 5- 2- 11- 10- 3- 6- 7- 12

0-15-60-75-120-135-180-195-240-255-300-315° + 0,50° + (0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,50-1,60

mm (from BDC)

(1,45-1,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,1+0,1	7,9 - 8,1	0,35(0,6)	6,4-6,6	1,4 - 1,8	0,3 (0,5)
300						

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	
max.	1190	15,2-17,8		-	-	-		ca. 14	100	min. 8,0	300	1,2-1,3		
ca. 64	8,1	1190-1200							300	6,4-6,6	600	3,1-3,4		
	4,0	1225-1255							320-425		1190	8,5		
	1350	0 - 1,0												

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	2b	4a	5a	5b	6	6	5	5
1	2	3		4	5	6	7	8	9
1150	78,5-80,5 (76,5-82,5)	1190-1200 *		800	83,0-86,0 (80,5-88,5)	100	116,5-126,5 113,5-129,5)	1150 500 900 1030	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

Test Specifications

Fuel Injection Pumps ①A and Governors

40

WPP 001/4 KHD 1 g 16

2. Edition

En

PES 6 A 85 D 410 RS 2591 RSV 325-1150 A 8 C 2194 L
Komb.-Nr. 0 400 876 326

supersedes 4.85
KHD
company BF 6 L 913
engine tractor DX 7.10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	12,4+0,1	8,4-8,5	0,3(0,45)			
325	7,4-7,6	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Intermediate rated speed		④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10
	Control rod travel mm	Control rod travel mm rev/min		rev/min	Control rod travel mm	
loose	800	0,3-0,7 $X = 6,0$	- - -	ca. 17	325	7,0
ca. 54 ②a	11,4 4,0 1515	1240-1250 1350-1380 0,3-1,4			100 325 620-680=2,0	1200 500 925 13,5-13,6 12,9-13,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min	cm³/1000 strokes 2	⑥ Rotational-speed limit Note changed to 3 rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle rev/min 6	⑤ Idle stop cm³/1000 strokes 7	④a Idle stop Control rod travel mm 8
			rev/min 4	cm³/1000 strokes 5			
1200	84,0-85,0 (82,0-87,0)	1240-1250*	-	-	100	17,0-17,5 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 6,1 k

3. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1089 L

Komb.-Nr. 0 400 836 026

supersedes 9.82

KHD

company: BF 6 L 913

engine:



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

2,2-2,3

Port closing at prestroke (2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,9+0,1	9,1-9,2	0,3(0,45)			
300	6,8-7,0	0,9-1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	18	Degree of deflection of control lever	rev/min mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8		-	-	-	ca. 14	100	min. 8,4	250	0,5-0,7
								300	6,8-7,0	550	3,4-3,6
ca. 68	10,9	1290-1300								900	5,2-5,4
	4,0	1370-1400								1250	8,1
	1500	0-1,0									
							325-500				
							3a				

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	5a	rev/min	cm³/1000 strokes	rev/min	control travel mm
1	2	3	4	5	5a	6	7	8	9
LDA	0,7 bar	1290-1300*		LDA	0,7 bar	100	110,0-120,0	1250	11,9+0,1
1250	91,0-92,0 (89,0-94,0)			800	86,5-89,5 (84,0-92,0)		(107,0-123,0)	500	12,3+0,1
				LDA	0 bar			800	12,2+0,1
				500	62,5-65,5 (60,5-67,5)			975	12,0+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel-mm	(1) diminution-difference
		Gauge pressure =	bar		
PES 6 A..RS 2592 + AB 1089 L	0,7	0		12,2-12,3	
		0,40		10,8-10,9	
		0,28		12,0-12,1	
				11,3-11,5	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12.7 40
4. Edition

En

PE 8 A 95 D 410 LS 2609 RQV 300-1250 AB 1128 L
Komb.-Nr. 0 400 648 129

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 9.85
company: KHD
engine: BF 8 L 413 F
235 kW (320 PS)
2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

^{1,8-1,9}

Port closing at prestroke (1,75-1,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	11,6+0,1	11,9-12,1	0,35(0,6)			
300	6,6-6,8	1,6-2,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	4	7	8	9	3	10	11
max.	1300	15,2-17,8		-	-	-		ca. 14	100	min. 8,2	320	1,7-1,8	
									300	6,6-6,8	600	3,0-3,2	
ca. 65	10,6	1290-1300									1000	5,4-5,6	
	4,0	1360-1390									300	8,5	
	1450	0 - 1,0											
								3a	315-420				

Torque control travel a = 0,75 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA 1250	0,7 bar 119,0-121,0 (117,0-123,0)	1290-1300 *		LDA 750	0,7 bar 124,5-127,5 (122,5-129,5)	100	130,0-140,0 (127,0-143,0) = 14,6-14,8 mm RW	1250 750 960 1090	11,6+0,1 12,4+0,1 12,2+0,2 11,7+0,3
				LDA 500	0 bar 105,0-107,0 (103,0-109,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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D. Adjustment Test for Manifold Pressure Compensator

KHD 12,7 n

- 2 -

Test at n =
500

decreasing
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel: diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE 8 A .. LS2609 + .. AB 1128	0,70	0 0,27 0,23	12,4-12,5 11,7-11,8 12,1-12,2 11,7-11,9 △

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 KHD 4,1 d 4

1. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1400 A 8 C 540-2 L

Komb.-Nr. 0 400 864 065

supersedes
company
engine

KHD
BF 4 L 913
35,0 kW

Testoil-ISO 413

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,6+0,1	7,0-7,1	0,3 (0,5)			
325	8,0-8,2	1,0-1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed			4	Lower rated speed		3		Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca.21	325	7,7	1250	11,6-11,7
		x = 4,75					100	min.19,5	500	12,2-12,3
ca.60 2a	10,6	1290-1300					325	8,1-8,3	1000	12,0-12,2
	4,0	1390-1420					630-690	= 2,0		
	1560	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	5	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	3	4	5	6	7	8	9
1250	70,0-71,0 (68,0-73,0)	1290-1300*	800	66,0-68,0 (63,5-70,5)	-	-	-	-	-
			1000	66,0-68,0 (63,5-70,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 4,1 d 1

2. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 2 C 707-2 L

Komb.-Nr. 0 400 864 062

supersedes 8.85
company KHD
engine BF 4 L 913
67 kW / 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,7+0,1	8,2 - 8,3	0,3 (0,45)			
325	8,1-8,3	1,0 - 1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	Control rod travel mm	
1	2	3				7	6	9	10	
loose	800	0,3 - 0,7	-	-	-	ca. 21	325	7,7	1000	12,7-12,8
	X = 4,25						100	min. 19,5	500	13,7-13,8
ca. 43	11,7	1040-1050					325	8,1-8,3	800	13,3-13,5
(2a)	4,0	1175-1205					655 - 715 = 2,0		900	12,9-13,1
	1340	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
LDA 1000	0,7 bar 81,5 - 82,5 (79,5 - 84,5)	1040-1050	LDA 800 LDA 500	0,7 bar 86,5 - 88,5 (84,0 - 91,0) 0 bar 61,5 - 63,5 (59,5 - 65,5)	100	115,0-125,0 112,0-128,0 =18,2 - 18,4 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference (1)
		Gauge pressure =	bar	
PES 4 A..RS 2638 +RSV..A 2 C 707-2L	0,70	0		13,7 - 13,8
		0,45		12,1 - 12,2
		0,29		13,3 - 13,4
				12,5 - 12,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

WPP 001/4 KHD 1 g 19

1. Edition

En

PES 3 A 85 D 410/3 RS 2642

RSV 325-1250 A 2 C 2168-2 L

supersedes

KHD

company F 3 L 913

engine 45,0 kW/2500 min⁻¹

tractor DX 3.50

Komb.-NR. 0 400 863 009



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6

(2,45-2,65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,9+0,1	7,1 - 7,2	0,3 (0,5)			
325	7,9-8,1	0,7 - 1,3	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
	Degree of deflection of control lever	Control rod travel mm	Control rod travel mm	rev/min	Control lever deflection in degrees		rev/min	Control rod travel mm		Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-0,7	-	-	-	ca. 22	325	7,5	1250	10,9-11,0	
	X = 4,0						325	7,9 - 8,1	800	11,3-11,4	
ca. 51 2a	9,9	1290-1300					480	-	540 = 2,0	1045	11,0-11,2
	4,0	1365-1395									
	1520	0,3-1,4									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limitat Note changed to .. rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop
rev/min	cm³/1000 strokes	3	4	5	6	7	8	Control rod travel mm
1250	70,5 - 71,5 (68,5 - 73,5)	1290-1300*	800	62,5 - 64,5 (60,0 - 67,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DEE 7,6 b

4. Edition

En

PES 6 A 100 D 410 RS 3034 RSV 600-1100 A 2 B 2080 L

Komb.-Nr. 0 401 276 049

Use overflow valve 1 413 385 007

supersedes 10.83

company John Deere
engine 6.466 AZ-01
152 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05
(1,90-2,10) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	11,7+0,1	12,9-13,1	0,4			
600	4,5-4,7	1,3-1,7	0,4			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min			Intermediate rated speed			4	Lower rated speed			3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		4	Control-lever deflection in degrees	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
loose	800	0,3-1,0	-	-	ca. 19	600	4,1	-	-	-	-	-	
ca. 37 (2a)	10,7 4,0 1250	1145-1155 1195-1225 0,3-1,7	-	-	ca. 19	100	min. 19,0	600	4,5-4,7	635-695	= 2,0	800	max. 1,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)		6	Rotational-speed limit Note changed to rev/min		3a	Fuel delivery characteristics		Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	cm³/1000 strokes	8	rev/min	9		
LDA 1100	0,7 bar 129,0-131,0 (126,5-133,5)	1145-1155*	LDA 500	0 bar 68,5-71,5 (67,0-73,0)	100	170,0-195,0 = 19,0- 21,0 mm RW	-	-				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 b

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel: mm (1)	diminution difference
	Gauge pressure = bar	Gauge pressure = bar		
PES 6 A ..RS 3034 +RSV..A 2 B 2080L	0,29	0,12	2,65-2,75 0,7-1,1	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 12,6 b 1

2. Edition

PE 8 AM 80 D 310 RS 2004 RSV 200-1150 A 4 B 73 DL

Komb.-Nr. 0 405 078 204

supersedes 10.84
KHD
company F 8 L 714 A
engine

En

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings



Port closing at prestroke 2,15-2,25 mm (from BDC)
(2,10-2,30)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	7,4 - 7,8	0,4			
	9,0 15,0 20,0	3,9 - 4,7 10,3 - 11,4 2,8 - 3,6				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.72	1150	16,0	ca. 25	200	6,0	1130
	1200	9,0		100	19,0-21,0	900
	1230	4,5		200	5,7- 6,3	700
(2a)	1180	11,0-13,0		300	3,6- 5,0	0,7 - 0,9
	1200	7,0-10,5		400	0,4- 3,4	1,1 - 1,3
	1250	2,2- 4,5		550	0- 1,0	
	1350	0- 1,0				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limit Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	3	4	5	6	7	8	9
	1150	72,0 - 73,0 (70,5 - 74,5)		800	75,0 - 77,0 (37,5 - 78,5)	-	-	-	-
				600	75,5 - 77,5 (74,0 - 79,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 12,6 b 2

1. Edition

En

PE 8 AM 80 D 310 RS 2004

RSV 200-1150 A 4 C 73 L

supersedes

company KHD

engine F 8 L 714 A
131,0 kW

Komb.-Nr. 0 405 078 204

TestOil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque control valve) mm
		1	2	3	4	5	6
1150	1,5+0,1	7,2-7,3		0,2(0,35)			
	8,9-9,1	2,8-3,6		0,35(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-0,7	-	-	-	ca. 20	200	7,0	1150	11,5-11,6
	x = 4,0						100	min. 19,5	500	12,8-12,9
ca. 67	10,5	1190-1200					200	7,4-7,6	800	11,9-12,1
	4,0	1230-1260					435-495	= 2,0		
2a	1390	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limit		3a	Fuel delivery characteristics		5	4a	Idle stop
	Test oil temp 40°C (104°F)	rev/min cm³/1000 strokes		Note changed to) rev/min	4		rev/min cm³/1000 strokes	6			Control rod travel mm
1150	72,0-73,0 (70,5-74,5)	1190-1200*	600	75,5-77,5 (74,0-79,0)		800	75,0-77,0 (73,0-79,0)	6	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RVI 8,8p

1. Edition

En

Testo 410 ISO 9001

PES 6 MW 100/320 RS 1025
RQ 750 MW 42
0 403 446 154

supersedes
company RVI
engine: MIDR 06.02.12
100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,00-3,10
(2,95-3,15) mm (from BDC)

Port closing at prestroke RW 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	14,5+0,1	13,35-13,55	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	rev/min	Setting point Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point Control rod travel mm	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm
				13,5 4,0 0-1	750-755 795-805 825 VH 32 ± 3						

Torque-control travel
on flyweight assembly dimension a = mm 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel
700	133,5-135,5 (131,5-137,5)					100	80,0-90,0 (77,0-93,0)

Checking values in brackets

11.85

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 12,7t4
1. Edition



PE 8 MW 100/720 LS 1117
RQ 300/1150 MW 61
0 403 548 010
1-8-7-2-6-5-4-3 je 45°

supersedes
company: KHD
engine: F8L 413 FZ
180 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
650	13,1+0,1	10,8-11,0	0,35(0,6)			
300	8,5-8,6	1,1-1,5	0,35(0,55)			
1150	11,7+0,1		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	7	8	9	10	11
max.	550	19,2-20,8					ca. 16	100	min. 10		
46	1350	0-1,0						300	8,5-8,6		
ca. 34	10,7	1200-1210					3a				
	4,0	1275-1305									

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5
1	2	3	4	5	6	Control rod travel mm
650	108,0-110,0 (106,0-112,0)	1200-1210*	1150	98,0-100,0 (95,0-104,0)	100 130,0-140,0 (127,0-143,0)	1150 11,7+0 1

Checking values in brackets

* 1 mm less control rod travel than col. 2

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 13,4d2

1. Edition

En



PE 8 MW 100/720 LS 1118
RQ 300/1150 MW 63-1
0 403 548 012
1-8-7-2-6-5-4-3 je 45°

supersedes -
company: KHD
engine: BF 8 L 513
225 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

3,10-3,20

Port closing at prestroke

(3,05-3,25)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
650	13,2+0,1	14,3-14,5	0,35(0,6)			
300	7,0-7,1	1,8-2,2	0,35(0,55)			
1150	12,1+0,1		0,5 (0,7)			
450	12,0+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	19,2-20,8	650	20,0	11,1 4,0 0-1	1190-1200 1255-1285 1340			100 300	min. 8,5 7,0-7,1 330-400	650 1150 850	13,2-13,3 12,1-12,2 12,9-13,1
	VH 46°										

Torque-control travel
on flyweight assembly dimension a = 0,40 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	3a	Fuel delivery characteristics rev/min		3b	Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3		4	5	6	cm³/1000 strokes/mm	Control rod travel
1	2	3		4	5	6	7	
LDA 650	0,9 bar 143,0-145,0 (141,0-147,0)			LDA 1150	0,9 bar 134,0-136,0 (132,0-138,0)	100	140,0-150,0 137,0-153,0	
				LDA 450	0 bar 111,0-113,0 (109,0-115,0)	300	18,0-22,0 (16,0-24,0)	

Checking values in brackets

11.85

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-dimension difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
RS 1118 mit MW 63-1	0,9	0 0,31 0,42	13,2-13,3 12,0-12,1 12,2-12,3 12,8-12,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Note: Test elec. unlocked starting fuel delivery (EES) with 24 Volts.

(2)

Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 KHD 13,4d3
En 1. Edition



PE 8 MW 100/720 LS 1128
RQ 300/1150 MW 63
0 403 548 011

1-8-7-2-6-5-4-3 je 45°

supersedes
company: KHD
engine: BF 8 L 513
225 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,10-3,20

(3,05-3,25)

mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,0+0,1	14,1-14,3	0,35(0,6)			
300	6,5-6,6	1,3-1,7	0,35(0,55)			
1150	2,5+0,1		0,5 (0,7)			
450	1,5+0,1					

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check Control rod travel mm	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	4	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	5	Control rod travel mm	3
rev/min	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,5 4,0 0-1	1190-1205 1270-1300 1350			300 100	6,5-6,6 min.8,1 330-400	700 1150 950	13,0-13,1 12,5-12,6 12,7-12,9

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At rev/min 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	4	5	6	7
LDA 700	0,99 bar 141,0-143,0 (139,0-145,0)			LDA 1150	0,99 bar 136,0-140,0 (135,0-141,0)	100	135,0-155,0 (132,0-158,0)
				LDA 450	0 bar 107,0-109,0 (105,0-111,0)	300	13,0-17,0 (11,0-19,0)

Checking values in brackets

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel	diminution difference
					mm	(1)
LS 1128 mit MW 63	0,99		0		13,0-13,1	
			0,30		11,5-11,6	
			0,40		11,8-11,9	
					12,6-12,7	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 KHD 13,4d4
En 1. Edition



PE 8 MW 100/720 LS 1128
RQ 300/1150 MW 63-2
0 403 548 014
1-8-7-2-6-5-4-3 je 45°

supersedes
company KHD
engine BF 8L 513
235 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20
(3,05-3,25) mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	12,6+0,1	14,1-14,3	0,35(0,6)			
300	6,5-6,6	1,3-1,7	0,35(0,55)			
700	13,6+0,1		0,5 (0,7)			
400	11,3-11,4					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	
Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	rev/min	rev/min	rev/min	rev/min	rev/min	
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,6 4,0 0-1	1190-1205 1255-1285 1350			300 100	6,5-6,6 min.8,1 330-400	1150 700 950 1100	12,6-12,7 13,6-13,7 13,0-13,2 12,6-12,7

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	idle speed	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	7	8
LDA	0,9 bar		LDA	0,9 bar	100	135,0-155,0	
1150	141,0-143,0 (139,0-145,0)		700	153,0-155,0 (151,0-157,0)		(132,0-158,0)	
			LDA	0 bar	300	13,0-17,0	
			450	107,0-109,0 (105,0-111,0)		(11,0-19,0)	

Checking values in brackets

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm	(1)
LS 1128 mit MW 63-2	0,48	0,33 0 0,90	13,0-13,1 12,2-12,5 11,3-11,4 13,6-13,7	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 DAF 11,6 i 9

2. Edition

En

PE 6 P 120 A 320 RS 372-1 RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 464

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 5.84
company DAF
engine DKS 1160
235 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
850	10,9+0,1	17,2-17,4	0,5(0,9)			
	250	6,2-6,4	1,4 - 2,0	0,8(1,2)		

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check	Control rod travel rev/min	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel rev/min	Control rod travel mm
	1	700	15,6-16,4	700	16,0	9,9 4,0 1350	1145-1160 1210-1240 0-1,0	250	6,3	100 250 445-485 = 2,0	min. 7,4 6,2-6,4 = 2,0
	2									850 1100	10,9-11,0 10,8-11,0

Torque-control travel
on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	Control rod travel mm	
LDA 850	0,7 bar 172,0-174,0 (169,0-177,0)	-	LDA 600	0 bar 130,0-132,0 (127,0-135,0)	100	300,0-340,0 (296,0-344,0) = 19,5-21,0 mm RW		

Checking values in brackets

11.85

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 9

-2-

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel mm (1)	diminution difference
	bar	bar		
PE 6 P..RS 372-1 + RQ..PA 417 R	0,70	0 0,30 0,26	10,9-11,0 9,8-9,9 10,6-10,7 10,0-10,4	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 VOL 12,0 a

7. Edition

En

PE 6 P 110 A 320 RS 141 RQV 200-1100 PA 103/2R
RS141,Z,Y 250-1100 PA 234/2R

supersedes 7.83
company Volvo
engine TD 120

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,6-2,7
(2,55-2,75) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	17,9 - 18,7	0,6			2,5 ⁺ -0,1 ** (max. 2,2-2,9)
600	6	3,2 - 4,2				
	12	17,3 - 18,8				
	15	23,5 - 25,3				
200	6	1,1 - 2,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV .. 103/2R mit 141

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1150	15,5-18,3				ca. 23	100	7,0-10,0	200	1,5-2,3
	1410	0					200	5,0-8,4	500	3,6-4,0
ca. 66	1100	15,0-18,0					300	2,4-5,2	1150	8,3
	1200	7,2-12,6					400	0 -2,2		
	1260	2,0-9,0					460	0	-	-
	1400	0								

Torque control travel a = mm

Caution: abnorm. sldg-sleeve pos'n = 36,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation		Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	10
LDA	0,7 bar			LDA	0 bar				
700	181,0-183,0			700	124,0-127,0				
		1150				100	390 - 410		
						200	17 - 21 **		
							dispersion max. 2,5		
(increase by ± 1,0 cm³!)									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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11.85

RQV..234/2R with 141

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	7	8	9	10	11
ca. 50	1170	15,0-18,3				ca. 13	100	9,0-11,0	350	1,4-2,0
	1400	0					200	7,2-9,9	650	3,7-4,0
ca. 45	1100	15,0-17,8					300	4,0-6,9	1170	8,3
	1200	6,4-12,0					400	0 -2,8	-	-
	1280	0 -6,2					490	0	-	-
	1360	0				(3a)				

Torque control travel a = — mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)			Rotational-speed limitation intermediate speed (2b)		Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	6	7	8	9	10
LDA 700	0,9 bar 181,0-183,0 (178,0-186,0)	1160-1170*	LDA 700	0 bar 124,0-127,0 (121,0-130,0)	100	340,0-360,0	250	11 - 15 dispersion max. 2,5:**		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV .. 234/2R mit 141Z

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	7	8	9	10	11
ca. 50	1170	15,0-18,3				ca. 13	100	9,0-11,0	350	1,4-2,0
	1400	0					200	7,2-9,9	650	3,7-4,0
ca. 45	1100	15,0-17,8					300	4,0-6,9	1170	8,3
	1200	6,4-12,0					400	0 -2,8	-	-
	1280	0 -6,2					490	0	-	-
	1360	0				(3a)				

Torque control travel a = — mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)			Rotational-speed limitation intermediate speed (2b)		Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	6	7	8	9	10
LDA 700	0,9 bar 205,0-207,0	1160-1170*	LDA 700	0 bar 124,0-127,0	100	390 - 410	250	11 - 15	**	

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV ., 234/2R with 141Y

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	7	8	3	10	11
ca. 50	1170	15,0-18,3				ca. 13	100	9,0-11,0	350	1,4-2,0
	1400	0					200	7,2-9,9	650	3,7-4,0
ca. 45	1100	15,0-17,8					300	4,0-6,9	1170	8,3
	1200	6,4-12,0					400	0 -2,8		-
	1280	0 -6,2					490	0		-
	1360	0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	8
LDA 700	0,7 bar 161,0-163,0	1160-1170	LDA 700	0 bar 116,0-119,0	100 390 - 410 250 11 - 15 dispersion max. 2,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm
141 with 103/2R	0,48-0,50	0,12-0,22	---
141 with 234/2R	0,90	0 0,51 0,31	11,3 - 11,4 8,8 - 8,9 10,7 - 10,8 9,3 - 9,5
141Z with 234/2R	0,62-0,66	0,14-0,27	---
141Y with 234/2R	0,49-0,52	0,14-0,30	---

En

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 MB 10,0 a

2. Edition

En

PE 5 P 100 A 720 RS 265 RSV 350-1000 P1/14
Komb.-Nr. 9 400 087 269
1-2-4-5-3 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 7.85
company Daimler-Benz
engine OM 355-5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9
Port closing at prestroke (2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Relational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,9+0,1	11,4 - 11,6	0,35 (0,6)			
350	7,4-7,6	1,5 - 1,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed			3 Torque control Control rod travel rev/min
	Control rod travel mm	Control rod travel mm	rev/min	4	5	6		Control rod travel mm	rev/min	9	
loose	800	0,3-1,0	X =	-	=	=	ca. 24	350	7,0	-	-
ca. 53 2a	11,9 4,0 1200	1040-1050 1095-1125 0,3-1,7						100	min. 19,0		
								350	7,4-7,6		
								520 - 580	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery		5 Idle stop Control rod travel mm
	rev/min	cm³/1000 strokes	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	
1000	114,0-116,0 (112,0-118,0)		1040-1050*	500	103,0 - 106,0 100,5 - 108,5	100	150,0-170,0 = 18,1-18,5 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 i 8

5. Edition

En

PE 6 P 110 A 320 RS 372-1

RQ 250/1100 PA 417-1

supersedes 6.85

Komb.-Nr. 0 401 846 463

RQ 250/1100 PA 417

company: DAF

DKTD 1160

191 kW (260 PS)

TestOil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,0+0,1	13,7-13,9	0,4(0,75)			
250	6,6-6,8	0,7-1,1	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Full-load speed regulation						Idle speed regulation						Torque control	
	Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications		Control rod travel mm	Control rod travel mm
Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
700	15,6-16,4	700	16,0	11,0 4,0	1145-1160 1220-1250	250	6,7	100 250 460-500	min. 7,8 6,6-6,8 = 2,0	850 1100	12,0-12,1 11,9-12,1			
				1350	0 - 1,0									

Torque-control travel on flyweight assembly dimension $a = 0$ mm Speed regulation: At $1145-1160 \text{ min}^{-1}$ 1 mm less control rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery Idle speed
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min
1	2	3	4	5
850	0,7 bar 137,0-139,0 (134,5-141,5)	-	LDA 600	0 bar 128,0-130,0 (125,5-132,5)
				100
				245,0-285,0 (241,0-289,0) = 19,5-21,0 mm RW

Checking values in brackets

11.85

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure increasing

DAF 11,6 i 8 - 2 -

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel: mm (1)	diminution difference
PE 6 P..RS372-1 +..PA417-1 oder ..PA 417	0,70		0 0,30 0,28		12,0-12,1 11,5-11,6 11,8-11,9 11,5-11,7	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 11,6 k 16

1. Edition

En

PE 6 P 120 A 320 RS 372-1
Komb.-Nr. 0 401 876 310

RSV 250-1100 P 5 A 508-2

supersedes-

company DAF

engine DKS 1160
235,0 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	10,9+0,1	17,2-17,4	0,5 (0,9)			
250	6,6-6,8	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 0,3-0,7		-			ca. 24	250	5,8	850	11,1-11,2
	X = 5,0						250	6,2-6,4	400	11,1-11,3
ca. 54 2a	9,9	1140-1150					620-680= 2,0		300	11,4-11,9
	4,0	1260-1290								
1425 0,3-1,4										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note: changed to ...), rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	Control rod travel mm
LDA 850	0,7 bar 172,0-174,0 (169,0-177,0)	1140-1150*	LDA 600	0 bar 130-132,0 (127,0-135,0)		100	300,0-340 (296,0-344 0)	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 K 16 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE 6P.. RS 372-1 + RSV..P5A508-2	0,7	0 0,36 0,28	10,9-11,0 9,8-9,9 10,6-10,7 10,0-10,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 29

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel: mm (1)	diminution difference
PES 6 P..LS 388 +RQV..PA 504	0,70		0 0,31 0,43		11,4-11,5 9,2-9,3 10,3-10,4 10,9-11,1	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

**(2) Test Specifications
Fuel Injection Pumps (2)
and Governors**

40

WPP 001/4 MAN 11,1 q 28

2. Edition

En

PES 6 P 120 A 720 LS 388 RQ 250/1050 PA 658-8
Komb.-Nr. 0 402 046 266
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.84
company MAN
engine D 2566 MK 279
206 kW/2100 min⁻¹
MAN-Nr. 2-7238

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1
(2,95-3,15) mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,8+0,1	18,7-18,9	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600 VH = max. 46°	19,2-20,8	600	20,0	9,7 4,0 1300	1095-1110 1175-1205 0-1,0	250	6,4	100 250 340-380 = 2,0	min.7,9 6,3-6,5 380 = 2,0	750 1050 870 935	11,8-11,9 10,7-10,8 11,6-11,8 10,9-11,2

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At 1095-1110 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	3	4	5	6	7
LDA 750	1,0 bar 187,0-189,0 (184,0-192,0)	-	LDA 650	1,0 bar 178,0-184,0 (175,0-187,0)	100	205,0-225,0 (201,0-229,0)
LDA 1050	1,0 bar 167,0-173,0 (164,0-176,0)		LDA 500	0 bar 113,0-115,0 (110,0-118,0)	250	6,3-6,5 mm RW

Checking values in brackets

11.85

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 28

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel mm	diminution difference (1)
PES6P..LS388 + RQ..PA658-8	1,0		0		11,8-11,9	
			0,31		9,5-9,6	
			0,44		10,5-10,6	
					11,2-11,6	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 w

1. Edition

En

PES 6 P 120 A 720 LS 388 RQ 300/1100 PA 658-13

Komb.-Nr. 0 402 046 319

supersedes
company: MAN
D 2566 MLUM/US
engine: 227,0 kW
MAN-Nr. 2-7697

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,10
(2,95-3,15) mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,6+0,1	18,1-18,3	0,5(0,9)			
300	6,4-6,6	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	10,4 4,0	1145-1160 1185-1215	300	6,5	100 300 370-410=	min. 8,0 6,4-6,6 2,0	750 1100 850 920	12,0-12,1 11,4-11,5 11,7-11,9 11,4-11,5
VH = max. 46°				1400	0-1,0				-		

Torque-control travel
on flyweight assembly dimension a = 0,20 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed		Control rod travel mm
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
1	2		3	4	5	6	7	
LDA	1,0 bar		-	LDA	1,0 bar	100	225,0-245,0	
750	181,0-183,0 (178,0-186,0)			650	174,0-180,0 (171,0-183,0)	300	(221,0-249,0) 12,0-18,0	
LDA	1,0 bar			LDA	0,35 bar		(9,0-21,0)	
1100	180,0-184,0 (177,0-187,0)			500	140,0-150,0 (137,0-153,0)			
				LDA	0 bar			
				500	111,0-113,0 (108,0-116,0)			

Checking values in brackets

10.85

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

MAN 11,1 w

- 2 -

Pump/governor	Setting	Measurement		Control rod travel-dimension difference
		Gauge pressure =	bar	
PES 6 P..LS 388 + RQ..PA 658-13	1,0	0		11,6-11,7
		0,22		9,4-9,5
		0,48		9,7-9,8
				11,0-11,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 w 1

1. Edition

En

PES 5 P 120 A 720 LS 388 RQ 300/1100 PA 658-14

Komb.-Nr. 0 402 046 320

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
MAN
company:
D 2566 MLUM/CA
engine: 227,0 kW
MAN-Nr. 2-7698



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,
(2,95-3,15)

mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,4+0,1	18,8-19,0	0,5(0,9)			
300	7,0-7,2	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,1 4,0	1145-1160 1185-1215	300	7,1	100 300 380-420=	min.8,6 7,0-7,2 2,0	750 1100 850 920	12,7-12,8 12,1-12,2 12,5-12,7 12,1-12,4
VH = max. 46°				1400	0-1,0					-	

Torque-control travel
on flyweight assembly dimension a = 0,20 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	3a	Fuel delivery characteristics		3b	Starting fuel delivery Idle speed		6
rev/min	cm³/-1000 strokes	3		rev/min	cm³/-1000 strokes	6	rev/min	cm³/1000 strokes/mm	Control rod travel mm
1	2	3		4	5	6	7		
LDA 750	1,0 bar 188,0-190,0 (185,0-193,0)		-	LDA 650	1,0 bar 183,0-189,0 (180,0-192,0)		100	225,0-245,0 (221,0-249,0)	
LDA 1100	1,0 bar 190,0-194,0 (187,0-197,0)			LDA 500	0,35 bar 140,0-150,0 (137,0-153,0)		300	12,0-18,0 (9,0-21,0)	
				LDA 500	0 bar 110,0-112,0 (107,0-115,0)				

Checking values in brackets

10.85

BOSCH

Geschäftsbericht KH. Kundendienst. Kfz-Ausrüstung.
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D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

MAN 11,1 w 1

- 2 -

Pump/governor	Setting	Measurement	Control rod travel- difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
PES 6 P..LS 388 + RQ..PA 658-14	1,0	0 0,25 0,58	12,4-12,5 9,7-9,8 10,0-10,1 11,5-11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 w 2

1. Edition

En

PES 6 P 120 A 720 LS 388 RQ 300/1100 PA 658-15

Komb.-Nr. 0 402 046 318

supercedes
MAN
comprany D 2566 MLUH/CA
engine 192,0 kW
MAN-Nr. 2-7700

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,10
(2,95-3,15) mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,1+0,1	15,3-15,5	0,5(0,9)			
300	6,4-6,6	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	④	Setting point rev/min	Control rod travel mm	Test specifications rev/min	⑤	Control rod travel mm	③
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	9,7	1145-1160	300	6,5	100	min. 8,0	750	11,2-11,3
VH = max. 46°				4,0	1180-1210			300	6,4-6,6	1100	10,7-10,8
				1400	0-1,0			370-410=	2,0	850	11,0-11,2
								-		920	10,7-11,0

Torque-control travel
on flyweight assembly dimension a = 0,20 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	rev/min	cm³/-1000 strokes	Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed		Control rod travel mm
			②	③a	④	⑤	⑥	⑦	
1	2	3	4	5	6	7	6	7	8
LDA	1,0 bar		-		LDA	1,0 bar	100	225,0-245,0	
750	153,0-155,0				650	147,0-153,0		(221,0-249,0)	
	(150,0-158,0)					(144,0-156,0)			
LDA	1,0 bar				LDA	0,35 bar	300	12,0-18,0	
1100	162,0-166,0				500	131,0-141,0		(9,0-21,0)	
	(159,0-169,0)					(128,0-144,0)			
					LDA	0 bar			
					500	111,0-113,0			
						(108,0-116,0)			

Checking values in brackets

10.85

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 w 2

- 2 -

Test at $n =$ **500 rev/min** decreasing pressure – in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference				
	Gauge pressure =	bar	Gauge pressure =	bar	mm	(^t)	.
PES 6 P..LS 388 + RQ..PA 658-15	1,0		0		11,1-11,2		
			0,22		9,7-9,8		
			0,35		10,0-10,1		
					10,6-10,9		

Notes:

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MAN 11,1 w 3

1. Edition

En

PES 6 P 120 A 720 LS 388 RQ 300/1100 PA 658-16

Komb.-Nr. 0 402 046 321

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1.680 750 067

supersedes
company
engine:
MAN
D 2566 MLUH/US
177,0 kW
MAN-Nr. 2-7720



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,10
(2,95-3,15) mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	10,6-0,5	14,5-14,7	0,5(0,9)			
300	6,3-6,5	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Checking of slider PRG check	Control rod travel rev/min	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	8,7 4,0	1145-1160 1175-1205	300	6,4	100 300	min.7,9 6,3-6,5	750 1100	10,7-10,8 9,7-9,8
VH = max. 46°				1350	0-1,0			370-410=	2,0	870	10,5-10,7
								-		950	9,9-10,2

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed		Control rod travel mm
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
1	2	4	5	6	7			
LDA	1,0 bar	-		LDA	1,0 bar	100	225,0-245,0	
750	145,0-147,0 (142,0-150,0)			650	141,0-147,0 (138,0-150,0)	300	(221,0-249,0)	
LDA	1,0 bar			LDA	0,35 bar		12,0-18,0	
1100	141,0-145,0 (138,0-148,0)			500	130,0-140,0 (127,0-143,0)		(9,0-21,0)	
				LDA	0 bar			
				500	111,0-113,0 (108,0-116,0)			

Checking values in brackets

10.85

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 w 3

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution mm (1)
PES 6 P..LS 388 + RQ..PA 658-16	1,0	0 0,25 0,32	10,6-10,7 9,6-9,7 9,9-10,0 10,2-10,5

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,1 q 13

2. Edition

En

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 671
 Komb.-Nr. 0 402 046 274, 0 402 046 275

superseded 7.83
 MAN
 company D 2566 MK(F)
 engine 206 kW/2200 min⁻¹



These specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1
 (2,95-3,15) mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
750	11,4+0,1	17,8-18,0	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	① 18	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 3	① 1
1	2	3	② 2a	4	5	6	⑤ 4	7	8	9	⑥ 3	② 1
max.	1130	15,2-17,8		-	-	-		ca. 12	100	min. 7,8	300	1,7-2,0
									250	6,2-6,4	850	6,0-6,2
ca. 63	9,2	1140-1150									1100	8,3
	4,0	1205-1235										
	1350	0-1,0										
								③ 3a	395-520			

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	② 2b	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	control rod travel mm
1	2	3	④ 4a	4	5	6	7	8	9
LDA	0,7 bar	1140-1150*		LDA	0,31 bar	100	205,0-225,0	750	11,4+0,1
750	178,0-180,0			500	131,0-137,0		(201,0-229,0)	1100	10,2+0,1
	(175,0-183,0)				(128,0-140,0)			860	11,0+0,2
LDA	0,7 bar			LDA	0 bar			990	10,4+0,3
1100	160,0-166,0			500	104,0-106,0				
	(157,0-169,0)				(101,0-109,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 13

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PES 6 P..LS 388 + RQV..PA 671	0,70	0 0,31 0,43	11,4-11,5 9,2-9,3 10,3-10,4 10,9-11,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,1 q 14

2. Edition

En

PES 6 P 120 A 720 LS 388

RQV 250-1100 PA 671-1

supersedes 3.83

company MAN

engine D 2566 MK

235 kW/2200 min⁻¹

Komb.-Nr. 0 402 046 277

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
(2,95-3,15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,1	21,8-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		①			
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①
1	2	3	②a	4	5	6	⑤	7	8	9	⑥	10	11	①
max.	1130	15,2-17,8		-	-	-		ca. 12	100	min. 7,9	300	1,7-2,0		①
ca. 64	10,3	1140-1150							250	6,3-6,5	850	6,0-6,2		①
	4,0	1220-1250									1100	8,3		①
	1350	0-1,0												①
														①
														①
														①
														①
														①
														①
														①
														①
														①
														①

Torque control travel a = 1,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	control rod travel mm 9
LDA 750	1,0 bar 218,0-220,0 (215,0-223,0)	1140-1150*	LDA 500	0,34 bar 144,0-150,0 (141,0-153,0)	100	205,0-225,0 (201,0-229,0)	750	13,1+0,1 11,3+0,1	
LDA 1100	1,0 bar 180,0-186,0 (177,0-189,0)		LDA 500	0 bar 102,0-104,0 (99,0-107,0)			860	12,6+0,2 985	11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

-2-

MAN 11,1 q 14

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel mm	diminution difference (1)
		Gauge pressure = bar	Gauge pressure = bar		
PES 6 P..LS 388 +RQV..PA 671-1	1,0	0 0,34 0,61			13,1-13,2 9,4-9,5 10,9-11,0 12,5-12,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,1 q 15

2. Edition

En

PES 6 P 120 A 720 LS 388 RQV 250-1050 PA 671-2

Komb.-Nr. 0 402 046 278

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.83

company: MAN

engine: D 2566 MK/319
235 kW/2100 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

**A. Fuel Injection Pump Settings**

Port closing at prestroke 3,0-3,10
(2,95-3,15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
750	13,1+0, 2	21,8-22,0 3	0,5(0,9)	2		
	6,3-6,5 2	1,1-1,7 3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm	
1	2	3	1a	4	5	4	7	8	10	11	
max.	1130	15,2-17,8		-	-	-	ca. 12	100 250	min. 7,9 6,3-6,5	300 850 1050	1,7-2,0 6,0-6,2 7,7
ca. 62	10,3 4,0 1300	1090-1100 1180-1210 0-1,0						395-520 3a			

Torque control travel a = 1,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min
1	2	3	4a	5	6	5
LDA 750 LDA 1050	1,0 bar 218,0-220,0 (215,0-223,0) 1,0 bar 180,0-186,0 (177,0-189,0)	1090-1100*	LDA 500	0,34 bar 144,0-150,0 (141,0-153,0) 0 bar 102,0-104,0 (99,0-107,0)	100 (201,0-229,0)	205,0-225,0 (201,0-229,0) 750 1050 850 950 13,1+0,1 11,3+0,1 12,6+0,2 11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

-2-

MAN 11,1 q 15

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- mm (1)	diminution difference
PES 6 P..LS 388 +RQV..PA 671-2	1,0	0 0,34 0,61	13,1-13,2 9,4-9,5 10,9-11,0 12,5-12,9	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

D2

22 En

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 DAF 11,6 v 5

1. Edition

En

PE 6 P 110 A 320 RS 407-1 RSV 275-1000 P 5 A 508-5
Komb.-Nr. 0 401 876 305

supersedes
company DAF

engine DKCL 1160
155 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

Port closing at prestroke (2,75-2,95)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,3±0,1	14,0-14,2	0,4(0,75)			
275	7,0-7,2	0,9-1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-0,7 $X = 4,5$	-	-	-	ca. 23	275	6,6	600	12,5-12,6
	ca. 48	10,1 1040-1050 4,0 1160-1190 2a 1325 0,3-1,4					275	7,0-7,2	1000	11,1-11,3
							675-735 = 2,0		750	12,1-12,3
									850	11,4-11,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery		⑤	④a Idle stop		
	rev/min	cm³/1000 strokes	Note changed to rev/min	rev/min	cm³/1000 strokes	Idle		rev/min	cm³/1000 strokes	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
LDA 600	0,7 bar 139,5-141,5 (137,0-144,0)	1040-1050*	LDA 1000	0,7 bar 115,0-119,0 (112,0-122,0)	100	245,0-265 (241,0-269)	0	-	-	
			LDA 600	0 bar 137,0-139,0 (134,5-141,5)	275	9,0-14,0 (6,5-16,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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11.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 v 5

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- mm (1)	diminution difference
PE 6 P..RS 407-1 + RSV..P 5 A 508-5	0,70		0 0,28		12,3-12,4 12,1-12,2 12,2-12,3	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 11,6 o 7

1. Edition

En

PE 6 P 120 A 320 RS 415-1
Komb.-Nr. 0 401 876 295

RSV 250-1000 P5A 508-1

supersedes...
company DAF
engine DKZ 1160

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,5+0,1	20,6-20,8	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-0,7	-	-	-	ca. 23	250	6,0	850	12,7-12,8	
	x = 4,8						250	6,4-6,6	400	12,7-12,8	
ca. 49	11,5	1035-1045					660-720	2,0	300	12,9-13,4	
2a	4,0	1190-1220									
	1350	0,3-1,4									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)		6	3a	Fuel delivery characteristics		Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
	rev/min	cm³/1000 strokes	Note changed to rev/min	4	5	cm³/1000 strokes	rev/min	7	8	9
1	2	3	4	5	6	7	8	9	10	11
LDA	0,7 bar		1035-1045*	LDA	0 bar		100	305,0-345,0	-	-
850	206,0-208,0			600	140,0-142,0			(301,0-349,0)		
	(203,0-211,0)				(137,0-145,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 o 7

- 2 -

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-diminution difference	
					mm	(1)
PE 6 P..RS 415-1 + RSV..P5A 508-1	0,70		0		12,5-12,6	
			0,34		10,3-10,5	
			0,26		11,8-11,9	
					10,6-11,0	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 DAF 11,6 o 8

1. Edition

En

PE 6 P 120 A 320 RS 415-1
Komb.-Nr. 0 401 876 296

RSV 250-1100 P5A 508-2

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1.680 750 067

supersedes
company DAF
engine DKX 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
	2	3	4	2	3	6
850	11,6+0,1	18,7-18,9	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,7	-	-	-	ca. 23	250	6,0	850	11,8-11,9
		x = 4,8					250	6,4-6,6	400	11,8-12,0
ca. 53	10,6	1135-1145					640-700	=2,0	300	12,1-12,6
2a	4,0	1270-1300								
	1430	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)		6	Rotational-speed limit Note: changed to .. rev/min		3a	Fuel delivery characteristics		Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	cm³/1000 strokes	rev/min	8	9		
LDA 850	0,7 bar 187,0-189,0 (184,0-192,0)	1135-1145*	LDA 600	0 bar 140,0-142,0 (137,0-145,0)	100	305,0-345,0 (301,0-349,0)						

Checking values in brackets

* 1 mm less control rod travel than col 2

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D7

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 o 8

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel: diminution difference	
					mm	(1)
PE 6 P..RS 415-1 + RSV..P5A 508-2	0,7		0		11,6-11,7	
			0,30		10,3-10,5	
			0,26		11,3-11,4	
					10,8-11,1	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 DAF 11,6 o 9

1. Edition

En

PE 6 P 120 A 320 RS 415-1 Y RSV 250-900 P5A 508

Komb.-Nr. 0 401 876 294

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes—
company DAF
engine DKZ 1160 E



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
875	11,4+0,1	18,2-18,4	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed			4	Lower rated speed			3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 21	250	6,0	875	11,4-11,5
		X = 4,3					250	6,4-6,6	600	12,4-12,5
ca. 45	10,4	935-945					395-455=4,0		725	12,0-12,2
(2a)	4,0	1020-1050							775	11,7-11,9
	1180	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	5	Rotational-speed limit Note: changed to .. rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
LDA 875	0,7 bar 182,0-184,0 (179,0-187,0)	935-945*	LDA 600	0,7 bar 186,0-192,0 (183,0-195,0)		100	305,0-345 (301,0-349)	0 (0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D9

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 o 9

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-diminution difference	
					mm	(1)
PE 6 P..RS 415-1 Y + RSV...P5A 508	0,7		0		12,2-12,3	
			0,35		10,3-10,5	
			0,26		11,7-11,8	
					10,7-11,1	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 11,6 o 10

1. Edition

En

PE 6 P 120 A 320 RS 415-1 Z RSV 250-900 P5A 508

Komb.-Nr. 0 401 876 293

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes

company DAF

engine DKX 1160 E



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
875	11,0+0,1	17,1-17,3	0,5 (0,9)			?
250	6,7-6,9	1,4-2,0				

Adjust the fuel delivery from each outlet according to the values in □ □

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
loose	800	0,3-0,7	-	-	-	ca. 26	250	6,0	875	11,0-11,1	
	x = 4,5						250	6,4-6,6	600	11,9-12,0	
ca. 49	10,0	935-945	-	-	-	ca. 26	395-455	=2,0	725	11,5-11,7	
(2a)	4,0	1020-1050							775	11,2-11,4	
	1180	0,3-1,4									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	3	4	5	6	7	8	9
LDA 875	0,7 bar 171,0-173,0 (168,0-176,0)	935-945*	LDA 600	0,7 bar 172,0-178,0 (169,0-181,0)	100	305,0-345,0 (301,0-349,0)	-	-	-
			LDA 600	0 bar 140,0-142,0 (137,0-145,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 o 10

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE 6 P..RS 415-1 Z + RSV..P5A 508	0,7	0 0,30 0,26	11,6-11,7 10,3-10,5 11,1-11,2 10,6-10,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 11,6 o 11

1. Edition

En

PE 6 P 120 A 320 RS 415-1 Z
Komb.-Nr. 0 401 876 323

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes:
company DAF
engine DVK 1160



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers



A. Fuel Injection Pump Settings



Port closing at prestroke

2,8-2,9
(2,75-2,95)

mm (from BDC)



Rotational speed

rev/min

1

Control rod travel

mm

2

Fuel delivery

cm³/100 strokes

3

Difference

cm³/100 strokes

4

Control rod travel

mm

2

Fuel delivery

cm³/100 strokes

3

Spring pre-tensioning (torque-control valve)

mm

6

650

11,0+0,1

16,7-16,9

0,5 (0,9)

250

6,5-6,7

1,4-2,0

0,8 (1,2)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	Control rod travel rev/min
	Control rod travel mm	Control rod travel rev/min	4	5	6		8	9		
loose	800	0,3-0,7 x = 5,0	-	-	-	ca. 24	250	5,8	650	11,2-11,3
							250	6,2-6,4	1090	9,6-9,8
ca. 54 2a	8,6 4,0 1370	1135-1145 1210-1240 0,3-1,4	-	-	-	ca. 24	650-710=2,0	6,2-6,4	825	10,6-10,8
									925	9,9-10,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5 Idle stop	4a Control rod travel	
rev/min	cm ³ /1000 strokes	3	4 rev/min	5 cm ³ /1000 strokes	6 rev/min	7 cm ³ /1000 strokes	8 rev/min	9 mm
LDA 550	0,7 bar 167,0-169,0 (164,0-172,0)	-	LDA 1090	0,7 bar 147,0-151,0 (144,0-154,0)	100	320,0-360 316,0-364	0 0)	- -
			LDA 600	0 bar 135,0-137,0 (132,0-140,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure DAF 11,6 o 11

- 2 -

600

Pump/governor	Setting	Measurement	Control rod travel-difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
PE 6 P..RS 415-1 Z + RSV..P5A 508-4	0,7	0 0,29 0,26	11,0-11,1 9,9-10,0 10,7-10,9 10,1-10,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 RVI 9,8 a 4

2. Edition

En

PES 6 P 120 A 320 RS 419 RQV 275-1100 PA 495-6
Komb-Nr. 0 402 046 302Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067supersedes 7.84
company: RVI
engine MIDR 062030
191 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testo oil ISO 411

Port closing at prestroke 2,8 - 2,9
(2,75 - 2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	9,3-9,4	17,3 - 17,5	0,5 (0,9)			
275	4,6-4,8	1,7 - 2,3	0,8 (1,2)			
Port closing mark 10,5° after port closing cylinder 1						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
max.	1150	15,2 - 17,8	-	-	-	-		ca. 10	200	min. 5,0	250	1,0-1,2	
ca. 65	8,3	1155 - 1165						275	290-400	3,2-3,4	475	3,5-4,0	
	4,0	1220 - 1250									900	6,4-6,6	
	1350	0 - 1,0									1100	8,1	
Torque control travel a = <input type="text"/> mm													

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation high idle speed		Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm³/1000 strokes	rev/min	②b	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	④a	4	5	6	7	8	9
LDA 1100	0,7 bar 173,0-175,0 (170,0-178,0)	1155 - 1165*	LDA 700	0,7 bar 159,0-165,0 (156,0-168,0)	100	140,0-160,0 (136,0-164,0)	-	-	-
			LDA 500	0 bar 93,0-95,0 (90,0-98,0)	275	3,2-3,4 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col 2

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11.85

D15

315

D. Adjustment Test for Manifold Pressure Compensator

RVI 9,8 a 4

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel mm	diminution difference (1)
		Gauge pressure =	bar		
PES 6 P RS 419 + RQV..PA 495-6	0,70			9,3 - 9,4	
			0	7,2 - 7,3	
			0,27	8,7 - 8,8	
			0,22	7,9 - 8,1	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 d 3

40

2. Edition

En

PES 6 P 120 A 320 RS 419-2 RQV 275-950 PA 698

Komb.-Nr. 0 402 046 293

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1.680 750 067

supersedes 7.84

company: RVI

engine: MIDS 062045

129 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing mark 9.5° after port closing cylinder 1

Port closing at prestroke 2,8-2,9
(2,75-2,95)

RW = 9,0 - 12,0 mm
mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
500	7,9-8,0	10,4-10,6	0,5(0,9)			
275	4,3-4,5	1,7-2,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3		4	5	6	4	7	8	9	10	11
max.	1070	15,2-17,8	-	-	-	-	ca. 8	200	min. 5,1	275	1,5-1,6	
ca. 62	6,3 4,0 1200	1010-1020 1045-1075 0-1,0					280-395	275	3,3 - 3,5	500	3,8-4,3	
										800	6,4-6,7	
										950	7,6	

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	4a	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
500	104,0-106,0 (101,0-109,0)	1010-1020*	950	122,0-128,0 (119,0-131,0)	100	150,0-170,0 (146,0-164,0)	500	7,9-8,0	
					275	3,3-3,5 mm RW	950	7,2-7,3	
							750	7,5-7,7	
							800	7,3-7,6	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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Testoil-ISO 4113

D12

D17

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11.4 a 2

2. Edition

En

PES 6 P 120 A 320 LS 429 RQV 250-1100 PA 676
Komb.-Nr. 0 402 046 285

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.83

company: MAN

engine: D 2566 MKUL
235 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3.0-3.1
(2 95-3 15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
750	13.0+0,0	21,5-21,7	0,5(0,9)			
250	6,3-6,5	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Intermediate rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	4	Lower rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel 1
1	2	3	2a	4	5	6	7	8	9	10	11	
max.	1130	15,2-17,8		-	-	-	ca. 12	100	min. 7,9	300	1,7-2,0	
ca. 64	10,3 4,0 1350	1140-1150 1230-1260 0-1,0					395-520	250	6,3-6,5	800 1100	5,7-5,9 8,3	

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Rotational-speed limitation intermediate speed 4a	rev/min	Fuel delivery characteristics high idle speed 5a	rev/min	cm ³ /1000 strokes	Starting fuel delivery idle switching point 6	rev/min	cm ³ /1000 strokes	Torque-control travel 5	Control rod travel mm
2	1	2	3	4	5b	6	7	8	9	8	9	
LDA	1,0 bar	1140-1150*	LDA	0,29 bar	100	205,0-225,0	750	13,0+0,1				
750	215,0-217,0		500	134,0-140,0	(201,0-229,0)	1100	11,3+0,1					
	(212,0-220,0)			(131,0-143,0)	250	12,0-18,0	860	12,6+0,2				
1100	177,0-183,0		LDA	0 bar	(9,0-21,0)	985	11,7+0,3					
	(174,0-186,0)		500	111,0-113,0								
650	206,0-212,0			(108,0-116,0)								
	(203,0-215,0)											

Checking values in brackets

* 1 mm less control rod travel than col 2

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11.85

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 a 2

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 429 + RQV..PA 676	1,0	0 0,29 0,58	13,0-13,1 9,7-9,8 10,7-10,8 12,4-12,7

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 9,5 a 3 40
3. Edition

En

PES 5 P 110 A 820 LS 434 RQV 300-1100 PA 594-1

Komb.-Nr. 0 402 045 024

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 7.83

company: Daimler-Benz

engine: OM 409

135 kW (184 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1

(2,95-3,15)

mm (from BDC)

Cyl. 1.5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	11,0+0,1	11,0-11,2	0,4(0,8)			
300	8,1-8,3	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1150	15,2-17,8	-	-	-	-	ca. 40	100	300	min. 9,5	250	1,0-1,3	
ca. 60	10,0 4,0 1300	1140-1150 1175-1205 0 - 1,0	②a ③a	5 6	320-435	-	320-435	8,0-8,2	8,0-8,2	8,0-8,2	530 820 1100	3,9-4,2 5,5-5,8 8,2	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	
1100	110,0-112,0 (107,0-115,0)	1140-1150*	600	91,0-93,0 (88,0-96,0)	190	130,0-150,0 (126,0-154,0)

Checking values in brackets

* 1 mm less control rod travel than col 2

11.85

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 11,6 u 5

1. Edition

En

PE 6 P 110 A 720 RS 441 RSV 250-1200 P 5 A 509-1

Komb.-Nr. 0 401 876 317

supersedes
company DAF
engine DHS 825



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9
(2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,2+0,1	13,7-14,0	0,4 (0,75)			
250	5,0-5,2	0,7-1,2	0,45 (0,75)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

① Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel rev/min	4	5	6		8	9		
loose	800	0,3-0,7	-	-	-	ca. 24	250	4,6	1000	12,4-12,5
			X = 5,0				250	5,0-5,2	400	12,4-12,6
ca. 58 ②a	11,2 4,0 1500	1240-1250 1330-1360 0,3-1,4	-	-	-	ca. 24	525-585 = 2,0	2,0	300	12,7-13,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat		③a Fuel delivery characteristics		Starting fuel delivery		⑤	④a Idle stop Control rod travel mm
	rev/min	cm³/1000 strokes	Note changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	
LDA 1000	0,7 bar 136,5-139,5 (134,0-142,0)	1240-1250*	LDA 600	0 bar 91,5-94,5 (89,0-97,0)	100	245,0-285,0 - (241,0-289,0)		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 a 5 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel: mm (1)	diminution difference
PE 6 P.. RS 441 + RSV..P5A 509-1	0,7	0 0,36 0,27	12,2-12,3 10,1-10,2 11,7-11,8 10,8-11,2	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 11,4 1 11

2. Edition

En

PES 6 P 110 A 820 LS 442 RQV 300-1100 PA 594-4
Komb.-Nr. 0 402 046 229

supersedes 7.84
company Daimler-Benz
engine OM 407
176 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke		3,15-3,35		mm (from BDC)		3,20-3,30	
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm	
1100	11,7±0,5	12,9-13,1	0,4(0,75)				
	7,3-8,0	1,4-2,0	0,45(0,75)				
	-	Sp.4 u. 5	0,6(0,9)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	4	7	8	9	3
max.	1140	15,2-17,8		-	-	-	ca.30	100	min.9,5	250	1,0-1,2
ca.61	10,7	1140-1150						300	7,8-8,0	530	3,5-3,7
	4,0	1180-1210								820	5,0-5,4
	1300	0 - 1,0								1100	7,7
							3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1100	129,0-131,0 (126,5-133,5)	1140-1150*	600	113,0-117,0 (110,0-120,0)		100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 8.30 12

1. Edition

En

PE 6 P 100 A 720 RS 447-1 RSV 250-750 P 7A 507-1
Komb.-Nr. 0 401 876 299

supersedes
companion DAF
engine DHT 825 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

3.2-3.3

Port closing at prestroke (3.15-3.35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	12,7+0,1	14,3-14,5	0,35(0,6)			
250	5,3-5,5	0,9-1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note changed to)	3a Fuel delivery characteristics		Starting fuel delivery		5	4a Idle stop	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8		9
750	142,5-144,5 (140,5-146,5)	790-795 *	-	-	250	9,0-13,0 (6,5-15,5)	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 8,3 911

1. Edition

En

PE 6 P 100 A 720 RS 447 RSV250-1200 P 5 A 509-1
Komb.-Nr. 0 401 876 316

supersedes
company DAF
engine DHT 825
162,0 kW



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,2-3,3

Port closing at prestroke

(3,15-3,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	11,4+0,1	11,9-12,1	0,35 (0,6)			
250	5,3-5,5	0,8-1,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 0,3-0,7		-	-	-	ca. 24	250	4,9	1000	11,6-11,7
	$X = 5,0$						100	min. 7,0		400 11,6-11,8
(2a)	ca. 58	10,4 1240-1250					250	5,3-5,5	300	11,9-12,4
		4,0 1325-1355					540-600	= 2,0		
		1530 0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)	rev/min	Note changed to rev/min	3	4	5	6	7	8	9
LDA	0,7 bar	1240-1250*	LDA	0 bar		100	210,0-230,0	-	-
1000	118,5-120,5 (116,5-122,5)		600	92,5-96,5 (90,0-99,0)			(206,0-234,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 o 11

- 2 -

Test at n = 600 rev/min decreasing pressure – in bar gauge pressure
increasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6P..RS 447 + RSV..P5A 509-1	0,7	0	11,4-11,5
		0,32	10,4-10,5
		0,23	11,1-11,2
			10,5-10,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,4 e 2

1. Edition

En

PES 6 P 110 A 720 LS 455
Komb.-Nr. 0 402 046 238

RQV 250-1100 PA 580

supersedes -
company: MAN
engine: D 2566 MTE
206,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke 3,0-3,1
(2,95-3,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5				

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		①		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel rev/min	1
1	2	3	2a	4	5	6	4	7	8	9	3	300	1,4-1,7
max.	1140	15,2-17,8		-	-	-	ca. 12	100	min.8,9	100	10	850	5,3-5,6
ca. 46	11,4	1140-1150						250	7,3-7,5	250	11	1100	7,9
4,0	1210-1240							340-400=2,0		340-400=2,0			
1350		0-1,0											

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 1100	0,7 bar 146,0-149,0 (143,5-151,5)	1140-1150*		LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0 (221,0-249,0)		
				LDA 500	0 bar 110,0-113,0 (107,5-115,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

E3

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 e 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure = ° bar	Control rod travel: mm (1)	diminution difference
PES 6 P..LS 455 mit RQV..PA 580	0,7		0 0,20	12,4-12,5 11,3-11,4 11,8-11,9	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 e

2. Edition

En

PES 6 P 110 A 720 LS 455

RQV 250-1100 PA 674

Komb.-Nr. 0 402 046 307

supersedes 7.84

company: MAN

engine: D 2566 MTE
184 kW/2200 min⁻¹
MAN-Nr. 2-7323

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers



A. Fuel Injection Pump Settings

3,0-3,1

(2,95-3,15)

mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
800	12,8+0,1	15,9-16,2	0,4(0,75)			
250	6,9-7,1	1,1-1,6	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min.8,5	300	1,5-1,8
ca. 52	10,5	1140-1150					250	6,9-7,1	800	5,1-5,4
	4,0	1205-1235					340-400 = 2,0		1100	8,8
	1350	0-1,0								

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel		
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1140-1150*	LDA	0,7 bar	100	215,0-235,0	800	12,8+0,1
800	159,0-162,0 (156,5-164,5)		650	160,0-164,0 (157,0-167,0)		(211,0-239,0)	1100	11,5+0,1
LDA	0,7 bar		LDA	0 bar			900	12,4+0,2
1100	136,0-140,0 (133,0-143,0)		500	97,0-100,0 (94,5-102,5)			1000	11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 e

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel: mm (1)	diminution difference
PES 6 P..LS 455 + RQV..PA 674	0,70	0 0,28 0,11	12,8-12,9 10,2-10,3 12,1-12,2 10,7-11,0	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,4 e 1

2. Edition

En

PES 6 P 110 A 720 LS 455 RQV 250-1100 PA 675
Komb.-Nr. 0 402 046 284

supersedes 7.84
company MAN
engine D 2566 MTE
206 kW/2200 min⁻¹
Excavator
MAN-Nr. 2-7235

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
(2,95-3,15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	12,1+0,1	14,7-15,0	0,4 (0,75)			
	250	7,0-7,2	1,1-1,6	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	4	7	8	10	11
max.	1150	15,2-17,8	-	-	-	ca. 13	100	min.8,6	300	1,4-1,7
ca. 46	11,1 4,0 1350	1140-1150 1220-1250 0-1,0					250	7,0-7,2	800	5,0-5,2
							340-400 = 2,0		1100	7,9
						(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min
1	2	3	4	5	6	7
1100	147,0-150,0 (144,5-152,5)	1140-1150*	-	-	100	225,0-245,0 (221,0-249,0)

Checking values in brackets

* 1 mm less control rod travel than coi 2

11.85

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,4 e 3

1. Edition

En

PES 6 P 110 A 720 LS 455 RQ 250/1100 PA 743

Komb.-Nr. 0 402 046 312

supersedes -

company: MAN

engine D 2566 MTE
206,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
(2,95-3,15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,1+0,1	17,8-18,1	0,4 (0,75)			
250	6,7-6,9	1,1-1,6	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	rev/min	Setting point Control rod travel mm	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point Control rod travel mm	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	
600	19,2-20,8	600	20,0	12,1 4,0 1350	1145-1160 1205-1235 0 - 1,0	250	6,8 100 250 340-380	min. 8,3 6,7-6,9 = 2,0	1100 600	13,1-13,2 13,1-13,3	
VH = max. 46 °											

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery Idle speed
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min
1100	178,0-181,0 (175,5-183,5)			100 225,0-245,0 (221,0-249,0)

Checking values in brackets

10.85

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,4 C

3. Edition

En

PES 6 P 120 A 720 LS 457

RQ 750 PA 566

supersedes 7.84

company MAN

engine D 2566 MLE
198 kW / 1500 min⁻¹
MAN-Nr. 2-7341

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067
Komb.-Nr. 0 402 046 250

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
(2,95-3,15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
700	12,5+0,1	20,2-20,4	0,5(0,9)			
250	6,1-6,3	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,5 4,0 900	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 750-755 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	
1	2	3	4	5	6	7	
700	202,0-204,0 (199,0-207,0)	-	-	-	-	-	

Checking values in brackets

11.85

E9

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(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MAN 11,4 c 1

2. Edition

En

PES 6 P 120 A 720 LS 457 RQ 750 PA 661

Komb.-Nr. 0 402 046 267

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.84

company: MAN

engine: D 2566 MLE
198 kW / 1500 min⁻¹
MAN-Nr. 2-7341

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings3,0-3,1
(2,95-3,15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,5+0,1	20,2-20,4	0,5(0,8)			
250	6,1-6,3	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	rev/min	Setting point		Test specifications		Control rod travel mm	rev/min	Setting point		Control rod travel mm	rev/min
		Control rod travel mm	rev/min	Control rod travel mm	rev/min			Control rod travel mm	rev/min		
-	-	-	-	11,5 4,0 900	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

750 - 755 min⁻¹1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	Control rod travel mm
700	202,0-204,0 (199,0-207,0)	-	-	-	-	-	-

Checking values in brackets

11.85

E10

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(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MAN 11,9 a 4
2. Edition

En

PES 6 P 120 A 720 LS 470 RQ 250/1100 PA 658-9

Komb.-Nr. 0 402 046 308

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7,84

company MAN

D 2866 KUH

265 kW/2200 min⁻¹

MAN-Nr. 2-7530

Testoil ISO 4-13

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95)

mm (from BDC) cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,5+0,5	23,8-24,0	0,5(0,9)			
250	5,2-5,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel rev/min	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
		600	19,2-20,8	600	20,0	10,3	1145-1160	250	5,3	100	min.6,8
VH= max. 46°					4,0	1180-1210		250		250	5,2-5,4
					1300	0-1,0		315-355=2,0		935	12,4-12,6
										990	11,7-12,0

Torque-control travel on flyweight assembly dimension a = 0,65 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	
1	2	3	4	5	6	7	8	
LDA 750	1,0 bar 238,0-240,0 (235,0-243,0)	-	LDA 650	1,0 bar 239,0-245,0 (236,0-248,0)	100	225,0-245,0 (221,0-249,0)		
LDA 1100	1,0 bar 213,0-219,0 (210,0-222,0)	-	LDA 500	0 bar 139,0-141,0 (136,0-144,0)				

Checking values in brackets

11.85

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a 4

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P .. LS 470 +RQ .. PA 658-9	1,0	0 0,10 0,40	12,5-12,6 9,3-9,4 9,6-9,7 11,0-11,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

E12

E12

En

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,9 a

5. Edition

En

PES6 P 120 A 720 LS 470 RQ 250/1100 PA 684

Komb.-Nr. 0 402 046 288

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 4.85

MAN company

D 2866 KF
265 kW/2200 min⁻¹
MAN-Nr. 2-7355

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8 - 2,9
(2,75-2,95)

mm (from BDC)

Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,5+0,1	23,8-24,0	0,5(0,9)			
250	5,2-5,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Control rod travel rev/min		Control rod travel mm		Test specifications rev/min		Control rod travel mm		Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8 VH = max. 46°	600	20,0	10,3 4,0	1145-1160 1180-1210	250	5,3	100 250	min.6,8 5,2-5,4	750 1100	12, -12, 11,3-11,4
				1300	0-1,0				315-355 = 2,0	935 990	12,4-12,6 11,7-12,0

Torque-control travel
on flyweight assembly dimension a = 0,45 mm1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	Control rod stop rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	
LDA 750	1,0 bar 238,0-240,0 (235,0-243,0)	-	LDA 650	1,0 bar 239,0-245,0 (236,0-248,0)		100	225,0-245,0 (221,0-249,0)
LDA 1100	1,0 bar 214,0-218,0 (211,0-221,0)		LDA 500	0,4 bar 188,0-200,0 (185,0-203,0)			
			LDA 500	0 bar 139,0-141,0 (136,0-144,0)			

Checking values in brackets

11.85

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11.9 a

- 2 -

Test at $n =$ 500 rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference
		Gauge pressure =	bar	
PE6P..LS470 + RQ..PA684	1,0	0		12,5 - 12,6
		0,12		9,3 - 9,4
		0,40		9,6 - 9,7
				11,0 - 11,4

Notes

(1) when $n =$

**rev/min and
gauge pressure =**

bar (= maximum full-load control rod travel)

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MAN 11,9 a 2

2. Edition

En

PES 6 P 120 A 720 LS 70-1 RQ 250/1100 PA 679

Komb.-Nr. 0 402 046 289

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 12.83

company: MAN

engine: D 2866 KUL

265 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

(2,75-2,95)

mm (from BDC)

Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,7+0,1	23,0-23,2	0,5(0,9)			
250	5,6-5,3	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	10,9 4,0 1350	1145-1160 1185-1215 0-1,0	250	5,5	100 250 340-380=2,0	min. 7,2 5,6-5,8 2,0	750 100 965 1010	13,0-13,1 11,9-12,0 12,6-12,8 12,1-12,4
VH = max. 46°											

Torque-control travel
on flyweight assembly dimension a = 0,4 mmSpeed regulation: At 1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	3a	Fuel delivery characteristics		3b	Starting fuel delivery Idle speed		6
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	6	rev/min	cm ³ /1000 strokes/mm	Control rod travel
1	2			4	5	6	7		
LDA 750	1,0 bar 230,0-232,0 (227,0-235,0)		-	LDA 500	0,4 bar 179,0-181,0 (176,0-194,0)	100	225,0-245,0 (221,0-249,0)		
LDA 1100	1,0 bar 218,0-224,0 (215,0-227,0)			LDA 500	0 bar 128,0-130,0 (125,0-133,0)	250	12,0-18,0 (9,0-21,0)		

Checking values in brackets

11.85

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a 2

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 470-1 +RQ..PA 679	1,0	0 0,13 0, 40	12,7-12,8 9,4-9,5 9,7-9,8 11,1-11,5

Notes

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,9a3
2. Edition

En

PES 6 P 120 A 720 LS 470-1
Komb.-Nr. 0 402 046 296

RQV 250-1100 PA 707

supersedes 6.84

company: MAN

engine D 2866 KUL

265 kW/2200 min⁻¹
MAN-Nr. 2-7512

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings



Port closing at prestroke 2,8 - 2,9 (2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
750	12,7+0,1	23,0-23,2	0,5 (0,9)			
	250	5,4-5,6		0,8 (1,2)		

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Intermediate rated speed			Lower rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel	
			1a	2a	4				3	10
max.	1120	15,2 -17,8	-	-	-	ca. 11	100	min. 7,0	300	1,7-2,0
ca. 65	10,9	1140-1150					250	5,4-5,6	850	6,0-6,2
	4,0	1225-1255					365-425=2,0		1100	8,3
	1350	0 - 1,0								

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA 750	1,0 bar 230,0-232,0 (227,0-235,0)	1140-1160*		LDA 650	1,0 bar 231,0 -237,0 (228,0-240,0)	100	225,0 -245,0 (221,0 -249,0)	750 1100 935	12,7+0,1 11,9+0,1 12,5+0,2
LDA 1100	1,0 bar 218,0-224,0 (215,0-227,0)			LDA 500	0 bar 128,0-130,0 (125,0-133,0)			1010	12,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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E17

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9a3

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement		Control rod travel- mm	diminution difference (1)
		Gauge pressure =	bar		
PES 6 P. LS 470-1 + RQV. PA 707	1,0			12,7 - 12,8	
			0	9,4 - 9,5	
			0,40	11,2 - 11,3	
			0,19	9,9 - 10,3	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,9 a 7
1. Edition

En

PES 6 P 120 A 720/3 LS 470-2 RQ 250/1100 PA 684

Komb.-Nr. 0 402 036 050

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

company: MAN

engine: D 2866 KF/K
265,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,5+0,1	23,8 - 24,0	0,5 (0,9)			
250	5,2-5,4	1,2 - 1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min mm	Full-load speed regulation						Idle speed regulation						Torque control	
	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12				rev/min 11	Control rod travel mm 12
600 19,2-20,8	600	20,0	10,3 1145-1160	250	5,3	100 min. 6,8		750	12,7-12,8					
Vt = max. 46°			4,0 1180-1210	250	5,2-5,4	250 315-355=2,0	10	1100	11,3-11,4	935	12,4-12,6	990	11,7-12,0	

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b			Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes/mm 7	Control rod travel
LDA 750	1,0 bar 238,0 - 240,0 (235,0 - 243,0)		LDA 650	1,0 bar 239,0 - 245,0 (236,0 - 248,0)	100	225,0 - 245,0 (221,0 - 249,0)	
LDA 1100	1,0 bar 214,0 - 218,0 (211,0 - 221,0)		LDA 500	0,4 bar 188,0-200,0 (185,0 - 203,0)	250	12,0 - 18,0 (9,0 - 21,0)	

Checking values in brackets

10.85

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a 7

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel-dimension difference (1)
		Gauge pressure =	bar	
PES 6 P..LS 470-2 +RQ .. PA 684	1,0	0		12,5 - 12,6
		0,12		9,3 - 9,4
		0,40		9,6 - 9,7
				11,0 - 11,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,9 a 8

1. Edition

En

PES 6 P 120 A 720/3 LS 470-2 RQV 250-1100 PA 700
Komb.-Nr. 0 402 036 051

supersedes -
company: MAN
engine D 2856 KF/K
265,0 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
750	12,5+0,1	23,8-24,0	0,5 (0,9)	2	3	6
	5,2-5,4	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	4	7	8	9	3a	10	11
max.	1130	15,2-17,8		-	-	-		ca. 10	100	min. 6,8	300	1,7-2,0	
ca. 62	10,3	1140-1150							250	5,2-5,4	850	6,0-6,2	
	4,0	1225-1255							360-420 = 2,0	1100		8,3	
	1350	0 - 1,0											

Torque control travel a = 1,15 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5
1	2	3				
LDA	1,0 bar			LDA	1,0 bar	
750	238,0-240,0			650	239,0-245,0	750
	(235,0-243,0)				(236,0-248,0)	1100
LDA	1,0 bar			LDA	0,4 bar	11,3+0,1
1100	213,0-219,0			500	191,0-197,0	900
	(210,0-222,0)				(188,0-200,0)	1000
				LDA	0 bar	12,1+0,2
				500	139,0-141,0	11,5+0,3

Checking values in brackets

(136,0-144,0)

* 1 mm less control rod travel than col. 2

10.85

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a 8 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- diminution difference (1)
PES 6 P.. LS 470-2 + RQV .. PA 700	1,0		0 0,40 0,24		12,5-12,6 9,3-9,4 11,1-11,2 10,2-10,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MAN 11,9 a 9

1. Edition

En

PES 6 P 120 A 720/3 LS 470-3 RQ 250/1100 PA 679

Komb.-Nr. 0 402 036 047

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
company MAN
engine D 2866 KUL
265,0 kW



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9
(2,75-2,95)

mm (from BDC)

Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2.	3	6
750	12,7+0,1	23,0 - 23,2	0,5 (0,9)			
250	5,6-5,8	1,2 - 1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	10,9	1145-1160	250	5,7	100	min. 7,2	750	13,0-13,1
VH = max. 46°				4,0	1185-1215			250	5,6- 5,8	1100	11,9-12,0
				1350	0 - 1,0			340-	380= 2,0	965	12,6-12,8
										1010	12,1-12,4

Torque-control travel
on flyweight assembly dimension a = 0,40 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics rev/min	Starting fuel delivery Idle speed rev/min	Control rod travel mm
rev/min	cm³/-1000 strokes	3	4	5	6
LDA	1,0 bar		LDA	1,0 bar	100
750	230,0 - 232,0		650	231,0 - 237,0	225,0 - 245,0
	(227,0 - 235,0)			(228,0 - 240,0)	(221,0 - 249,0)
LDA	1,0 bar		LDA	0,4 bar	250
1100	218,0 - 224,0		500	179,0 - 191,0	12,0 - 18,0
	(215,0 - 227,0)			(176,0 - 194,0)	(9,0 - 21,0)
			LDA	0 bar	
			500	128,0 - 130,0	
				(125,0 - 133,0)	

Checking values in brackets

10.85

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a 9

- 2 -

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

500

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel: mm (1)		diminution difference
					mm	(1)	
PES 6 P..LS 470-3 + RQ..PA 679	1,0		0		12,7 - 12,8		
			0,13		9,4 - 9,5		
			0,40		9,7 - 9,8		
					11,1 - 11,5		

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,4 f
2. Edition

En

PES 6 P 100 A 720 LS 471 RQ 250/1100 PA 685
Komb.-Nr. 0 402 046 287supersedes 7.84
company: MAN
engine D 2566 UH/200
147 kW/2200 min⁻¹
MAN-Nr. 2-7454

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDG) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,3+0,1	9,4-9,6	0,35(0,6)			
250	4,9-5,1	1,2-1,8	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10	Control rod travel mm 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,3 4,0 1350	1145-1160 1215-1245 0-1,0	250	5,0	100 250 340-380=2,0	min.6,5 4,9-5,1	700 1100	12,4-12,5 12,3-12,5

Torque-control travel
on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7	Control rod travel mm 8	
750	94,0-96,0 (92,0-98,0)	-	500 1100	85,0-88,0 (82,5-90,5) 100,0-104,0 (97,5-106,5)	100	115,0-135,0 (111,0-139,0)		

Checking values in brackets

11.85

F1

BOSCH

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F1

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,9 a 11

1. Edition

En

PES 6 P 120 A 720/3 LS 470-3 RQV 250-1100 PA 707
Komb.-Nr. 0 402 036 048Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
company: MAN
engine D 2866 KUL
265,0 kW



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1 750	12,7+0,1	23,0-23,2	0,5 (0,9)			
2 250	5,4-5,6	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	⑮	Degree of deflection of control lever	rev/min	Control rod travel mm	⑯	Degree of deflection of control lever	rev/min	Control rod travel mm	⑰	rev/min	mm
1 max.	1130	15,2-17,8	-	-	-	-	⑯	ca. 11	100	min. 7,0	300	,7-2,0	
ca. 65	10,9	1140-1150					⑯		250	5,4-5,6	850	6,0-6,2	
	4,0	1225-1255					⑯		365-425	= 2,0	1100	8,3	
	1350	0 - 1,0					⑯						

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ③b		Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	⑨
1 LDA	1,0 bar			LDA	1,0 bar	100	225,0-245,0	750	12,7+0,1
750	230,0-232,0			650	231,0-237,0		(225,0-245,0)	1100	11,9+0,1
	(227,0-235,0)				(228,0-240,0)				
LDA	1,0 bar			LDA	0,4 bar	250	12,0-18,0	935	12,5+0,2
1100	218,0-224,0			500	182,0-188,0		(9,0-21,0)	1010	12,0+0,3
	(215,0-227,0)				(179,0-191,0)				
				LDA	0 bar				
				500	128,0-130,0				
					(125,0-133,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

F2

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F2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

MAN 11,9 a 11 - 2 -

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- diminution difference (1)	
					mm	(1)
PES 6P.LS470-3 + RQV.. PA 707	1,0		0		12,7-12,8	
			0,40		9,4-9,5	
			0,19		11,2-11,3	
					9,9-10,3	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,9 a 12 40

1. Edition

En

PES 6 P 120 A 720/3/8 470-3 RQV 300-1100 PA 707-1
Komb.-Nr. 0 402 036 053

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
company: MAN
engine: D 2866 LUL
243,0 kW
MAN-Nr. 2-7738

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,4+0,1	20,7-20,9	0,5 (0,9)			
300	4,9-5,1	1,2-1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever	Control rod travel mm	Control rod travel rev/min	Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
			1a	2a	4	5	6	7	8	9
max.	1130	15,2-17,8	-	-	-	ca. 12	100	min. 6,5	300	1,7-2,0
ca. 64	10,4	1140-1150					300	4,9-5,1	850	6,0-6,3
	4,0	1225-1255					380-440 = 2,0		1100	8,2
	1350	0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	4a	5b	6	8
1	2	3	4	5	6	7
LDA	1,0 bar	1140-1150 *	LDA	1,0 bar	100	225,0-245,0
750	207,0-209,0 (204,0-212,0)		1100	216,0-222,0 (213,0-225,0)		221,0-249,0)
			LDA	0,44 bar		
			500	181,0-191,0 (178,0-194,0)		
			LDA	0 bar		
			500	130,0-132,0		

Checking values in brackets

(127,0-135,0)

* 1 mm less control rod travel than col. 2
10,85

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a 12 - 2 -

Test at n =

500

decreasing
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	Measurement bar	Control rod travel- diminution mm (1)
PES 6P..LS 470-3 + RQV..PA 707-1	1,0	0	11,4-11,5
		0,23	9,0-9,1
		0,44	9,3-9,4
			10,6-10,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MAN 11,4 g
2. Edition

En

PES 6 P 110 A 720 LS 477 RQ 250/1100 PA 685
Komb.-Nr. 0 402 046 304

supersedes 7.84
MAN
company: D 2866 UH/240
engine: 177 kW/2200 min⁻¹
MAN-Nr. 2-7539

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) mm (from BDC) Cyl. 6.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
800	1	11,7+0,1	12,3-12,6	0,4 (0,75)		
	2	6,0-6,2	1,5-2,0	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG check rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	rev/min	Control rod travel mm
600	15,6-16,4	600	16,0	10,7 4,0	1145-1160 1210-1240 1350	250	6,1	100 250 370-410=2,0	min. 7,6 6,0-6,2 U-1,0	1100 500	11,7-11,8 11,7-11,9

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
800	123,0-126,0 (120,5-128,5)	-	1100	127,0-133,0 (124,0-136,0)	100	110,0-130,0 (106,0-134,0)
			500	113,0-119,0 (110,0-122,0)	250	15,0-20,0 (12,5-22,5)

Checking values in brackets

11.85

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② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MAN 11,4 g 1

1. Edition

En

PES 6 P 110 720 LS 477 RQ 250/1100 PA 685-1

Komb.-Nr. 0 402 046 310

supersedes

company MAN

engine D 2566 UH/200
147,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,5-3,6
Port closing at prestroke (3,45-3,65) mm (from BDC)

Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
800	10,5+0,1 2	9,1 - 9,4 3	0,4 (0,75)	2	3	6
	6,0-6,2 2	1,5-2,0 3	0,45 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel mm	
		Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm			
600	15,6-16,4	600	16,0	9,5 4,0 1300	1145-1160 1200-1230 0 - 1,0	250	6,1 250 370-410 = 2,0	100 6,0-6,2 370-410 = 2,0	min. 7,6 6,0-6,2 1100 500	1145-1160 min-1 10,7-10,8 10,7-10,9	10,7-10,8 10,7-10,9

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel
800	91,0-94,0 (88,5-96,5)			1100 500	103,0-107,0 (100,0-110,0) 81,0-85,0 (78,0-88,0)	100	110,0-130,0 (106,0-134,0)

Checking values in brackets

10.85

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F7

F7

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,9 b

1. Edition

En

PES 6 P 110 A 720 LS 477-1 RQV 300-1100 PA 667-1

Komb.-Nr. 0 402 046 325

supersedes
company MAN
engine D 2866 E
177,0 kW
MAN-Nr. 2-7681



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5-3,6 mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm
(3,45-3,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
800	12,2+0,1	12,3-12,6	0,4 (0,75)	2	3	6
	5,6-5,8	1,5-2,0	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	4	7	8	10	11
max.	1180	15,2-17,8	-	-	-	ca.17	100	min.7,2	300	1,2-1,4
ca. 53	11,2	1140-1150					300	5,6-5,8	500	3,3-3,6
	4,0	1195-1225					330-435		900	5,9-6,6
	1400	0-1,0				3a			100	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	7
800	123,0-126,0 (120,5-128,5)	1140-1150*	1100	128,0-132,0 (125,0-135,0)	100	110,0-130,0 (106,0-134,0)
			500	118,0-122,0 (115,0-125,0)	300	15,0-20,0 (12,5-22,5)

Checking values in brackets

* 1 mm less control rod travel than col. 2

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10.85

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11,9 c

1. Edition

En

PES 6 P 120 A 720 RS 487
Komb.-Nr. 0 402 046 314

RQV 400-1050 PA 750

supersedes
company MAN
engine D 2866 LUE
250,0 kWValues only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	10,4+0,1	19,4-19,6	0,5(0,9)			
400	4,4-4,6	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	7	8	9	10	11	
max.	1080	15,2-17,8		-	-	-	ca. 18	100	min. 7,5	375	1,1-1,3	
ca. 54	9,4 4,0 1300	1090-1100 1135-1165 0-1,0					415-515	400	4,2-4,4	800	4,6-4,9	
							3a			1050	7,8	

Torque control travel a = mm

C. Settings for Fuel injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed rev/min	Fuel delivery characteristics high idle speed rev/min	Starting fuel delivery idle switching point rev/min	Torque-control travel Control rod travel rev/min	
1	2	3	4	5	6	
LDA 1050	1,0 bar 194,0-196,0 (191,0-199,0)	1090-1100*	LDA 700 LDA 500 LDA 500	1,0 bar 178,0-184,0 (175,0-187,0) 1,0 bar 171,0-177,0 (168,0-180,0) 0 bar	100 (221,0-249,0) 400 12,0-18,0 (9,0-21,0)	- -
			500	139,0-141,0 (136,0-144,0)	* 1 mm less control rod travel than col. 2	

Checking values in brackets

10.85

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 c

- 2 -

Test at n = 500 rev/min decreasing increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-	diminution difference (1)
					mm	
PES 6 P..RS 487 + RQV..PA 750	1,0		0		10,4-10,5	
			0,30		9,3-9,4	
			0,36		9,6-9,7	
					10,0-10,2	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 9,6 k

4. Edition

En

Testoil-ISO 4113

PE 6 P 100 A 320 LS 805 RQ 1100 PA 440 R

Komb.-Nr. 0 401 846 408

6 - 3 - 5 - 2 - 4 - 1 $\pm 0,50^\circ$
0 - 45 - 120 - 165 - 240 - 285 $^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings3,40-3,50
(3,35-3,55)

mm (from BDC) Cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1050	10,4	10,0 - 10,2	0,3(0,6)			
	+0,1					
350	7,8-8,0	2,3 - 2,8	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel	
1	2	3	4	5	6	7	8	9	10	11

(1a) (2a) (3a) (4a)

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation Intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	Control rod travel mm
1050	100,0-102,0 (98,0-104,0)	1120-1125*	-	-	-	100	110,0-130,0 - ---	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.85

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①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 12,8 b 3

2. Edition

En

PE 8 P 100 A 320 LS 810 RQV 300-1250 PA 227 R

Komb.-Nr. 0 401 848 041

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 9.84
company: Daimler-Benz
engine OM 402

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,4-3,5
(3,35-3,55)

mm (from BDC) Cyl. 1.8



Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	0
1250	10,3+0,1	10,0-10,2	0,3(0,6)			
300	7,4-7,6	1,7-2,3	0,3(0,5)			
600	-	C, Sp. 4 u. 5	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	⑬	Degree of deflection of control lever	rev/min	Control rod travel mm	⑭	Degree of deflection of control lever	rev/min	Control rod travel mm	⑮	rev/min	mm
1	2	3	⑯	4	5	6	⑭	7	8	9	⑯	10	11
max.	1290	15,2-17,8	-	-	-	-	ca. 12	100	min. 9,0	250	0,7-1,0		
ca. 66	9,3	1290-1300						300	7,4-7,6	550	3,3-3,5		
	4,0	1330-1360						300-600		850	4,7-5,1		
	1450	0-1,0					⑯			1250	8,0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min	control rod travel mm
1250	100,0-102,0 (98,0-104,0)	1290-1300*	600	75,0-80,0 (72,5-82,5)	100	120,0-140,0 (116,0-144,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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F12

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MAN 20,9 e 3

1. Edition

En

PE 12 P 110 A 520 LS 838-1 RQ 900 PA 663-6
Komb.-Nr. 0 401 840 098

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

supersedes
company MAN
engine D 2542 MTE

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings



Port closing at prestroke		3,0-3,1 (2,95-3,15)		mm (from BDC)		Cy1. 12	
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes		Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
850	11,4+0,1	15,6-15,9		0,4(0,75)			
250	3,8-4,0	1,4-1,9		0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	rev/min	Setting point		Test specifications		Setting point		Test specifications		Control rod travel mm	rev/min
		Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min		
-	-	-	-	10,4 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At 900-905 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel
850	156,0-159,0 (153,0-161,5)	-	-	-	-	-	-

Checking values in brackets

10.85

F13
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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 17,4 a 5

2. Edition

En

PE 10 P 110 A 520/5 LS 846 RQV 250-1150 PA 673-1

Komb.-Nr. 0 401 849 183

1- 8- 7- 6- 3- 5- 2- 10- 9- 4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes 1,84

company MAN

D 2540 MTF

310 kW/2300 min⁻¹

MAN-Nr. 2-7372

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15)		mm (from BDC)		Cyl. 10	
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes
1150	11,5+0,1	13,2-13,5	0,4(0,75)		
250	7,0-7,2	1,1-1,6	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	7	8	9	10	11
max.	1170	15,2-17,8	-	-	-	ca. 12	100	min. 8,6	350	2,0-2,5
ca. 65	10,5	1190-1200					250	7,0-7,2	850	6,5-6,7
	4,0	1315-1345					400-460=2,0		1150	8,4
	1450	0-1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel		
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,9 bar 132,0-135,0 (129,5-137,5)	1190-1200*	LDA 750	0,9 bar 122,0-126,0 (119,0-129,0)	100	150,0-170,0 (146,0-174,0)	-	-
			LDA 500	0 bar 115,0-118,0 (112,5-120,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

MAN 17,4 a 5

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel mm	diminution difference (1)
		Gauge pressure =	bar		
PE 10 P.. LS 846 +RQV.. PA 673-1	0,90	0		11,5-11,6	
		0,32		11,1-11,2	
				11,3-11,4	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 17,4 b 9

2. Edition

En

PE 10 P 120 A 520/5 LS 850-1 RQ 750 PA 663-3

1-8-7-6-3-5-2-10-9-4

0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 11.84

company MAN

engine D 2540 MLE

283 kW/1500 min⁻¹

Komb.-Nr. 0 401 849 174

MAN-Nr. 2-7247

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings



Port closing at prestroke 3,0-3,1
(2,95-3,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	11,9+0,1	19,5-19,7	0,5(0,9)			
250	4,4-4,6	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point Control rod travel mm	Control rod travel mm	Test specifications Control rod travel mm	Setting point Control rod travel mm	Control rod travel mm	Test specifications Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	10,9 4,0 950	750-755 776-789 0 - 1,0	-	-	-	-	-	-

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation At

750-755 min

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	
1	2	3	4	5	6	7	8	
700	195,0-197,0 (192,0-200,0)	-	-	-	-	-	-	

Checking values in brackets

11.85

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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 14,5 a 1

1. Edition

En

PE 8 P 110 A 520 LS 851
Komb.-Nr. 0 401 848 083

RQV 250-1150 PA 670-3

supersedes
company MAN
engine D 2848 T
245,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15)			mm (from BDC)			
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,8+0,1	14,3-14,5	0,4(0,75)			
250	4,9-5,1	1,8-2,4	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③	rev/min 10	mm 11
max.	1220	15,2-17,8	-	-	-	-	④	ca. 9	100	min. 6,5	250	1,1-1,3	
ca. 62	9,8 4,0 1450	1190-1200 1270-1300 0-1,0	②a	-	-	-	③a	280-390	250	4,9-5,1	450 900 1150	2,9-3,3 5,7-6,1 7,8	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) : ②		Rotational-speed limitation Intermediate speed rev/min 3	Fuel delivery characteristics high idle speed rev/min 4	Fuel delivery characteristics high idle speed rev/min 5	Starting fuel delivery Idle switching point rev/min 6	Torque-control travel Control rod travel rev/min 8
rev/min 1	cm³/1000 strokes 2	rev/min 4a	rev/min 4	cm³/1000 strokes 5	rev/min 6	rev/min 8
LDA 1150	1,0 bar 143,0-145,0 (140,5-147,5)	1190-1200*	LDA 700	1,0 bar 140,0-144,0 (137,0-147,0)	100	190,0-210,0 186,0-214,0)
			LDA 500	0 bar 108,0-110,0 (105,5-112,5)		-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

D. Adjustment Test for Manifold Pressure Compensator

MAN 14,5 a 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel: mm (1)	diminution difference
PE 8 P..LS 851 + RQV..PA 670-3	1,0	0 0,29 0,23	10,8-10,9 9,6-9,7 10,5-10,6 9,9-10,2	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 14,5 a

2. Edition

En

PE 8 P 110 A 320 LS 851 RQ 250/1150 PA 688
 Komb.-Nr. 0 401 848 082
 1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 12.84
 company MAN
 engine D 2848 T
 245 kW/2300 min⁻¹
 MAN-Nr. 2-7353

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
 (2,95-3,15) mm (from BDC) Cyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	10,8+0,1	14,3-14,5	0,4(0,75)	2	3	6
	250	4,9-5,1	1,8-2,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation						Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm		
600	19,2-20,8	600	20,0	9,8 4,0 1450	1195-1210 1280-1310 0-1,0	250	5,0	100 250 310-350 = 2,0	min. 6,5 4,9-5,1	1150 700	10,8-10,9 10,8-11,0		
VH = max. 46°													

Torque-control travel
on flyweight assembly dimension a = 0 mm Speed regulation At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel mm
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
LDA 1150	1,0 bar 143,0-145,0 (140,5-147,5)	-	LDA 700 500	1,0 bar 137,0-141,0 (134,0-144,0) 0 bar 108,0-110,0 (105,5-112,5)	100 250	185,0-205,0 (181,0-209,0) 18,0-24,0 (15,5-26,5)

Checking values in brackets

11.85

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D. Adjustment Test for Manifold Pressure Compensator

MAN 14,5 a

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel:	diminution difference (1)
					mm	
PE8P..LS851 + RQ..PA688	1,0		0		10,8-10,9	
			0,29		9,7-9,8	
			0,23		10,5-10,6	
					9,9-10,1	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 FIA 13,8 i 1

2. Edition

En

PE 6 P 120 A 720 RS 3069

RQV 300-1200 PA 727

Komb.-Nr. 9 400 087 309

supersedes 3,85

company Fiat Diesel

8210.11

220 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,5-3,6

Port closing at prestroke

(3,45-3,55)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,4+0,1	20,1-20,3	0,5(0,9)			
300	6,0-6,2	1,5-2,1				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		①			
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①
1	2	3	②a	4	5	6	④	7	8	9	③	10	11	①
max.	1045	15,2-17,8	-	-	-	-	ca.	10	100	min.7,6	325	1,2-1,4		①
ca. 65	11,4	1040-1050							300	6,0-6,2	450	2,6-3,1		①
	4,0	1115-1145									800	5,7-6,0		①
	1250	0-1,0									1000	7,9		①
														①
														①
														①
														①
														①
														①
														①
														①
														①

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a		Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤ Control rod travel mm ⑨	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
LDA 1000	0,7 bar 201,0-203,0 (198,0-206,0)	1040-1050*	LDA 1000	0 bar 158,0-160,0 (155,0-163,0)	100	175,0-195,0 (171,0-199,0)	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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11.85

D. Adjustment Test for Manifold Pressure Compensator

FIA 13,8 i 1

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3069 +RQV..PA 727	0,70	0 0,36 0,31	12,4-12,5 10,0-10,1 11,6-11,7 10,6-11,0

Notes

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

F22

F22

En

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 DEE 10,1 b

2. Edition

En

US-PES 6P 110 A 720 RS 3086 US-RSV 400-1050 P0/492-1

Komb.-Nr. 9 400 231 174

Values apply to fuel-injection test tubing 9 681 271 004

supersedes 4-85

company John Deere

engine 6619 A

215 kW

Testo II ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,45-3,55

Port closing at prestroke (3,40-3,60) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1050	13,9+0,1	21,4-21,6	0,4 (0,75)			
400	6,0-6,2	1,9-2,5				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm		Control rod travel mm rev/min			Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 21	400	5,6	1050	13,9-14,0	
	X =						400	6,0-6,2	700	14,3-14,6	
ca. 42 (2a)	12,9	1090-1100					540-600	= 2,0			
	4,0	1185-1215									
	1280	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational speed limit Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
LDA 1050	1,0 bar 213,5-215,5 (210,5-213,5)	1090-1100*	LDA 700	1,0 bar 223,5-226,5 (220,0-230,0)		100	135,0-155,0	400	6,1
			LDA 500	0 bar 136,5-139,5 (133,0-143,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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11 . 85

D. Adjustment Test for Manifold Pressure Compensator

DEE 10,1 b

- 2 -

Test at n = 500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel:	diminution difference (1)
					mm	
US-PES6P..RS 3086 +RSV.. P0/492-1	0,47		0,26		14,1 - 14,2 12,9 - 13,3	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 i 2

40

2. Edition

En

PE 6 P 110 A 320 LS 3805-10 RQV 300-1150 PA 524-6
Komb.-Nr. 0 401 846 756

1 - 6 - 3 - 5 - 2 - 4
0-75-120-195-240-315° ± 0,5° (± 0,75 °)

supersedes 4.85
company: Daimler-Benz
engine: OM 421
148 kW (201 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,00-4,10

Port closing at prestroke (3,95-4,15) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,6+0,1	12,7-12,9	0,4 (0,8)			
300	9,1-9,3	1,6-2,2	0,4 (0,7)			
600	-	C, Sp. 4 u. 5	0,6 (0,8)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	4	7	8	9	3	10
max.	1190	15,2-17,8		-	-	-	ca. 23	100	min. 10,6	300	1,6-1,8	
ca. 55	11,6	1190-1200					ca. 23	300	9,1-9,3	300	5,8-6,2	
	4,0	1240-1270					ca. 23	430-490	= 2,0	1200	8,2-8,4	
	1500	0 - 1,0					ca. 23	1260			10,0	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	rev/min
1	2	3	4	6	8
1150	127,0-129,0 (124,0-132,0)	1190 - 1200	600	104,5-108,5 (101,5-111,5)	100
				130,0-150,0 (126,0-154,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4 86.

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Gf

① Test Specifications Fuel Injection Pumps ① and Governors

WPP OC1/4 KHD 9,6 q

2. Edition

40

En

PES 6 P 110 A 720 RS 3104

RQV 300-1150 PA 549-2

supersedes 5.85

Komb.-Nr. 0 402 046 761

company: KHD

engine: BF 6L 413 FRC
220 kW/2300 min⁻¹

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,80-2,90

(2,75-2,95)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1 1150	2 14,4+0,1	3 16,9-17,1	4 0,4(0,75)	2 300	3 7,8-8,0	6
			0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	4	7	8	9	3	10	11
max.	1225	15,2-17,8		-	-	-		ca. 26	100	min. 9,3	250	0,5-0,8	
ca. 60	13,4 4,0 1450	1190-1200 1315-1345 0 - 1,0						ca. 26	300	7,8-8,0	550 850 1150	3,6-4,2 5,4-5,7 7,8	
								320-500					
								3a					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitor intermediate speed rev/min	Fuel delivery characteristics high idle speed rev/min	Starting fuel delivery idle switching point rev/min	Torque-control travel Control rod travel rev/min			
1	2	3	4	5	6	7	8	9
LDA 1150	0,9 bar 169,0-171,0 (166,0-174,0)	1190-1200 *	LDA 600 LDA 450	0,9 bar 171,0-175,0 (168,0-178,0) 0 bar 123,0-125,0 (120,0-128,0)	100 135,0-155,0 (131,0-159,0)		-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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G2

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 q

- 2 -

Test at n = 450 rev/min decreasing increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-dimension difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
PES 6 P..RS 3104 + RQV..PA 549-2	0,90	0 0,5 0,36	14,4-14,5 12,5-12,6 13,9-14,0 12,7-12,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 11,0 m

5. Edition

En

PE 6 P 110 A 320 LS 3814
Komb.-Nr. 0 401 846 741

RQV 350-1150 PA 378

supersedes 3.85

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° ± 0,5° (± 0,75°)

company: Daimler-Benz

engine: OM 421
159 kW

Note VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers



A. Fuel Injection Pump Settings

4,00-4,10

Port closing at prestroke (3,95-4,15)

mm (from BDC)

Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery * cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery ** cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	5
1130	12,7+0,1	12,3-12,5	0,4(0,8)	12,7+0,1	13,4-13,6	
350	8,2-8,4	1,3-1,9	0,4(0,7)	8,2-8,4	1,3-1,9	
600	-	-	0,6(0,9)	-	C, Sp. 4 u.5	
1150	-	-				
* with return throttle (1)		** without return throttle (2)				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1150	15,2-17,8		-	-	-		cā. 16	100	min. 8,5	300	0,6-0,9	
ca. 66	11,7	1180-1190							350	8,2 - 8,4	580	3,6-3,7	
	4,0	1285-1315							375-485		870	5,2-5,3	
	1400	0-1,0									1150	7,6	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	②b	④a	⑤a	⑥	⑤
1	2	3	4	5	6	7
(1) 1130	123,0-125,0 (120,0-128,0)	1170-1180*	-	-	100	130,0-150,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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B. Governor Settings

MB 11,0 m -2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel	Control rod travel rev/min	1a Degree of deflection of control lever	rev/min	Control rod travel mm	4 Degree of deflection of control lever	rev/min	Control rod travel mm	3 rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min.8,5	300	0,6-0,9
ca. 66	11,7	1180-1190				375-485	350	8,2-8,4	580	3,6-3,7
	4,0	1285-1315							870	5,2-5,3
	1400	0-1,0							1150	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed			Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm
(2) 1150	134,0-136,0 (131,5-138,5)	1170-1180*	1150	93,0-97,0 (90,0-100,0)	100	140,0-160,0 (136,0-164,0)	-	-	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

**Reduced-delivery stop

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a Degree of deflection of control lever	rev/min	Control rod travel mm	4 Degree of deflection of control lever	rev/min	Control rod travel mm	3 rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed			Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 14,6 v

1. Edition

En

PE 8 P 120 A 320 LS 3816-10 RQV 350 1150 PA 778 K

Komb.-Nr. 0 401 848 771

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067
1-8-7-6-3-5-4 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
Daimler-Benz
company OM 422
engine 243,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1
(3,95-4,15) mm (from BDC) cyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	10,9+0,1	15,6-15,8	0,5(0,9)	2	3	6
	4,9-5,1	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	4	7	8	10	11
max.	1175	15,2-17,8	-	-	-	ca. 10	100	min. 6,0	300	0,2-0,4
ca. 61	9,9	1190-1200					370-480	350 4,5-4,6	580	3,3-3,5
	4,0	1240-1270							870	4,7-4,9
	1400	0-1,0							1150	8,0

Torque control travel a = 1,60 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	control rod travel mm
1150	156,0-158,0 (153,0-161,0)	1190-1200*	600	128,0-132,0 (125,0-135,0)	100	140,0-160,0 (136,0-164,0)	1150	10,9+0,2 600	9,3+0,2
			900	146,0-151,0 (143,0-154,0)			900	10,1+0,2	

Checking values in brackets

* 1 mm less control rod travel than col 2

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 18,3 d 4

40

1. Edition

En

PE 10 P 110 A 320 LS 3818-12 RQV 350-1150 PA 678-1
Komb.-Nr. 0 401 849 723
1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4
0-27-72-99-144-171-216-243-288-315 ° ± 0,5 ° (± 0,75 °)

supersedes
company Daimler-Benz
OM 423
engine 261 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,0-4,1
(3,95-4,15) mm (from BDC)

Cyl. 10

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,0+0,1	12,2-12,4	0,4 (0,8)			
350	8,5-9,7	1,4-2,2	0,4 (0,7)			
600/900	-	C, Sp. 4 u. 5	0,6 (0,9)			
1150	-	C, Sp. 1 u. 2	0,6(0,75)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	10 rev/min mm	11
1	2	3	2a	4	5	6	4	7	8	9	3	10	11
max.	1200	15,2-17,8		-	-	-		ca. 14	100	min. 10,2	300	1,2-1,4	
ca. 64	11,0	1190-1200							350	8,5-8,7	580	3,6-3,9	
	4,0	1240-1270									870	5,2-5,5	
	1400	0 - 1,0							350-500		1150	7,8	
									3a				

Torque control travel a = 0,70 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation Intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4a	4	5	6	7	8	9
1150	122,0-124,0 (119,0-127,0)	1190-1200 *		600	110-114,0 (107,0-117,0)	100	150,0-170,0 (146,0-174,0)	1150	12,0+0,1
1150	92,0-94,0 (89,0-97,0)			900	118,0-123,0 (115,0-126,0)			600	12,7+0,2
	**							900	12,4+0,2

Checking values in brackets

** Reduced-delivery stop

* 1 mm less control rod travel than col. 2

12.85

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G7

57

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 21,9 b 3

1. Edition

En

PE 12 P 120 A 320 LS 3819-14 RSV 350-1150 PA 493-5

Komb.-Nr. 0 401 840 730

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315 ° ± 0,5 ° (± 0,75 °) 390 kW

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

4,00-4,10

(3,95-4,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,1+0,1	15,9-16,1	0,5 (0,8)			
350	4,8-5,0	1,4-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	7	8	9	10	11	
max.	1150	15,2-17,3	-	-	-	-	ca. 14	100	min. 8,5	300	1,9-2,1	
ca. 64	10,1	1190-1200						350	6,9-7,1	580	3,5-3,7	
	4,0	1280-1310								870	5,2-5,4	
	1375	0 - 1,0						400-600		1150	7,7	
												3a

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	2b	4a	5a	5b	6	7	8	5
1	2	3	4	5	6	7	8	9	Control rod travel mm
LDA	0,6 bar			LDA	0,6 bar				
1150	159,0-161,0 (156,0-164,0)	*	1190-1200 *	650	160,0-166,0 (157,0-169,0)	100	150,0-170,0 (146,0-174,0)	-	
1150	118,0-121,0 (115,0-124,0)	**		LDA	0 bar				
				500	127,0-129,0 (124,0-132,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

** Adjusted at the inner lever of the reduced-delivery stop

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 b 3 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P..LS3819-14 +RQV..PA 493-5	0,60	0	11,1-11,2
		0,38	10,0-10,2
		0,32	10,8-10,9
			10,1-10,3

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MWM 28,8 a

1. Edition

En

PE 8 P 120 A 520/5 RS 7109 RQV 300-1150 PA 756

Komb.-Nr. 0 402 648 814

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

1-2 - 3- 4 - 7 - 8 - 5 - 6

0-30-90-120-225-255-315-345 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company MWM

engine TBD 234 V 16



A. Fuel Injection Pump Settings

Port closing at prestroke 5,2-5,3 (5,15-5,35) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	19,1-19,3 (18,8-19,6)	0,5 (0,9)			
	300	5,9-6,1	2,2-2,8		0,8 (1,2)	

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel rev/min 2	Control rod travel rev/min 3	Intermediate rated speed Degree of deflection of control lever 4	Control rod travel rev/min 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	Control rod travel rev/min 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	Sliding sleeve travel mm 11
max.	1200	15,2-17,8	-	-	-	ca. 11	100	min. 7,4	300	1,3-1,4
ca. 66	11,0	1190-1200					300	5,9-6,1	325	1,6-2,0
	4,0	1275-1305					310-530		390	2,4-2,8
	1400	0 - 1,0							470	3,0-3,5
									1190	8,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	Rotational-speed limitation Intermediate speed 3	Fuel delivery characteristics high idle speed 5a	Starting fuel delivery idle switching point 6	Torque-control travel Control rod travel mm 5
rev/min 1	cm³/1000 strokes 2	rev/min 4	rev/min 6	rev/min 8
		cm³/1000 strokes 5	cm³/1000 strokes 7	cm³/1000 strokes 9
	1190-1200*		100	200,0-240,0

The full-load delivery is adjusted on the engine in accordance with the engine
Komb.-Nr. 0 402 68 800

Checking values in brackets

* 1 mm less control rod travel than col 2
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D. Adjustment Test for Manifold Pressure Compensator

MWM 28,8 a - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- mm (1)	diminution difference
PE 8 P.. RS 7109 + RQV .. PA 756	0,7		0 0,10		12,0-12,1 10,0-10,1 10,1-10,3	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure
increasing

MB 14,7 b

- 2 -

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure =	bar	mm (1)
PE 8 P .. LS 780 + RQV.. PA 797	0,68	0,31	14,8-15,0
		0,47	12,2-12,4
		0,82	13,8-14,0
		0,95	15,0-15,1
		1,10	15,4-15,6
		0,15	16,0-16,1
			11,5-11,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 14,7 b 1

1. Edition

En

PE 8 P 120 A 320 LS 7801 RQV 300-1050 PA 797-1

1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes-
company Daimler-Benz
engine OM 442 A
260 kW

Komb.-Nr. 0 402 648 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

5,20-5,30

(5,15-5,35)

mm (from BDC)

Cyl. 8; RW = 20,0-21,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	13,6+0,2	19,2-19,4	0,5(0,9)			
300	6,2-6,6	1,6-2,2	0,6(1,0)			
1050	-					
700	-	C, Sp. 4 u. 5	0,8(1,2)			
850	-					
500	-					

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	⑩	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	⑤	7	8	9	③a	10	11
max.	1090	15,2-17,8		-	-	-		ca. 19	100	min. 7,7	300	1,2-1,4	
ca. 53	11,6	1095-1110							300	6,2-6,4	600	4,9-5,1	
	4,0	1155-1185							300-450		1075	7,4-7,6	
	1300	0-1,5									100	8,0-8,2	
											150	9,1	

Torque control travel a = 1,20 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a	Starting fuel delivery idle switching point ⑥	Torque-control travel Control rod travel ⑤
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	rev/min
1	2	3	4	5	6
LDA	0,65 bar		LDA	1,05 bar	1050
600	192,0-194,0	1095-1110*	700	205,0-209,0	850
	(189,0-197,0)			(202,0-212,0)	700
LDA	1,05 bar		850	201,0-205,0	14,1+0,3
1050	179,0-182,0		LDA	(198,0-208,0)	
	(176,0-185,0)		500	0 bar	
				145,0-147,0	
				(142,0-150,0)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MB 14,7 b 1

-2-

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	bar	Measurement	bar	Control rod travel		diminution difference
					mm	(1)	
PE 8 P..LS 7801 +RQV..PA 797-1	0,65			0,30		13,6-13,8	
				0,40		11,9-12,1	
				0,85		12,9-13,2	
						13,7-13,8	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test specifications Fuel injection pumps and governors

En.

PE 6 ZW 160/120 RS 1028/11 RQUV 300-900 ZWA 51 R
Komb.-Nr. 0 402 436 058

Replaces 9.85
Firm: MTU
Engine: 396

1- 2- 3 - 4 - 5 - 6
0-45-120-165-240-285 ° ± 0,5 ° (± 0,75 °)

Note VDT-W-A11g./7

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke		2,5-2,6 (2,45-2,65)	mm (from BDC)	Cyl. 6	
Rotational speed min⁻¹	Control-rod travel mm	Fuel delivery Average value cm³/1000 strokes	Difference in fuel delivery cm³/1000 strokes	Fuel delivery Checking values cm³/1000 strokes	Spring pre-tension (torque-control valve)
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed Control lever deflection degrees	Control-rod travel		Medium rated speed		Lower rated speed		Torque control				
	min⁻¹	mm	Control lever deflection degrees	min⁻¹	Control-rod travel mm	Control lever deflection degrees	min⁻¹	Control-rod travel mm	Control lever deflection degrees	min⁻¹	Control-rod travel mm
ca. 79	900	18,0-19,0	ca. 27	375	8,0	ca. 2	300	8,0	-	-	-
ca. 79	700	18,0-19,0 (max. 30)									
	17,0	905-925	200	14,3-17,2		200	10,8-14,2				
	4,0	1000-1050	300	10,3-11,8		400	3,9-5,0				
	1100	0 - 2,0	500	2,5-3,7		485	590 = 0				
			590	720 = 0							

Torque control travel a = -

mm

Speed regulation: At

1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed		Fuel-delivery characteristics		Starting fuel delivery	
min⁻¹	cm³/1000 strokes	min⁻¹	Idle stop	min⁻¹	cm³/1000 strokes	min⁻¹	cm³/1000 strokes
-	not known !		300 RW = 8,0 mm	-	-	-	-

Checking values in brackets

11 85

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TestOil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 6/11 F 1800 L 18

Overflow temperature 45° C

supersedes 3.83
company: Volvo
engine:

0 460 416 001

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting 0,2 mm $\pm 0,02 (0,04)$ Test Instructions and Test Equipment
see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,2-3,6 mm	0,74	
1.2 Supply-pump pressure	1500	6,0-6,7 bar (kgf/cm²)	0,74	
1.3 Full-load delivery with charge-air pressure	500	47,0-49,0 cm³/1000 strokes	0	
Full-load delivery without charge-air pressure	1500	63,5-64,5 cm³/1000 strokes	0,74	3,0
1.4 Idle regulation	325	8,0-12,0 cm³/1000 strokes	0	2,0
1.5 Full-speed regulation	100	min. 72,0 cm³/1000 strokes	0	
1.6 Start	2040	19,5-25,5 cm³/1000 strokes	0,74	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA = 0,74 bar	n = rev/min mm	1000 0,7-1,7(0,5-1,9)	1500 (2,7-4,1)	1800 4,5-5,3(4,2-5,6)
2.2 Supply pump LDA = 0,74 bar	n = rev/min bar (kgf/cm²)	400 2,0-2,7		1800 6,9-7,6
Overflow delivery	n = rev/min cm³/10 s	500 55-110(40-125)		1800 55-110(40-125)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2140-2220	0	0,74	K	-
	2120	max. 6,0	0,74	KF	5,9-6,2
	2040	(18,0-27,0)	0,74	MS	1,5-1,7
	1800	57,2-59,8 (55,8-61,2)	0,74	SVS	max.4,2
	1500	(61,3-66,7)	0,74		
	* 500	51,5-53,5 (49,1-55,9)	0,28		
	500	(44,6-51,4)	0		
switch-off	1800	0		A	5,8-10,8
				B	10,4-15,6
Idle stop	370-450 325	0 (5,5-14,5)		Observations	
2.4 Solenoid	cut-in voltage rated voltage	min. 10 V 12 V.		* LDA-stroke 4,0 mm Use adjusting nut (46) to correct.	

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil ISO 4113

VE 4/9 F 1800 R 160-1

Overflow temperature 45° C

0 460 494 150

 supersedes
 company: VW
 engine: 068.5 T

All test specifications are valid only for Bosch Fuel-Injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,2-3,6 mm	0,75	
1.2 Supply-pump pressure	1500	5,5-6,1 bar (kgf/cm²)	0,75	
1.3 Full-load delivery with charge-air pressure	1500	41,5-42,5 cm³/1000 strokes	0,75	2,5
Full-load delivery without charge-air pressure	600	24,5-25,5 cm³/1000 strokes	0	
1.4 Idle regulation	475	6,0-10,0 cm³/1000 strokes	0	2,0
1.5 Full-speed regulation	1870	9,0-15,0 cm³/1000 strokes	0,75	
1.6 Start	100	min.35,0 cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA=0,75 bar	n = rev/min mm	1000 1,2-2,0 (0,9-2,3)	1500 (2,7-4,1)	1780 4,1-4,9 (3,8-5,2)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	600 3,4-4,0		1780 6,2-6,8
Overflow delivery	n = rev/min cm³/10 s	600 (0 bar) 55-138 (40-153)		1780 (0,75 bar) 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation
End stop	1900	max. 4,0	0,75	K KF MS SVS
	1870	(8,0-16,0)	0,75	
	1780	39,5-41,5 (38,3-42,7)	0,75	
	1500	(39,8-44,2)	0,75	
	1000*	33,5-34,5 (31,8-36,2)	0,30	
	600	(22,8-27,2)	0	
switch-off elektr.	400	0		A B
Idle stop	600 475	max.3,0 (4,0-12,0)		Observations * LDA-stroke 4,5 mm Use adjusting nut (46) to correct.
End stop	350	min.32,0		
	450	max.38,0		
2.4 Solenoid	cut-in voltage rated voltage 12 V.	min.10,0 Volt		

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 x 1

1. Edition

En

Testoil-ISO 4113

VE 4/9 F 1500 R 160-2 Overflow temperature 45° C
0 460 494 151supersedes -
company: VW
engine: 068.5 T
Ind. Mot. 50 Hz

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1480	3,1-3,5 mm	0,75	
1.2 Supply-pump pressure	1480	5,4-6,0 bar (kgf/cm²)	0,75	
1.3 Full-load delivery with charge-air pressure	1480	41,5-42,5 cm³/1000 strokes	0,75	2,5
Full-load delivery without charge-air pressure	600	24,5-25,5 cm³/1000 strokes	0	
1.4 Idle regulation	475	6,0-10,0 cm³/1000 strokes	0	2,0
1.5 Full-speed regulation	1570	9,0-15,0 cm³/1000 strokes	0,75	
1.6 Start	100	min.35,0 cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA=0,75 bar	n = rev/min mm	1000 1,2-2,0 (0,9-2,3)	1480 (2,6-4,0)	
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	600 3,4-4,0		
Overflow delivery	n = rev/min cm³/10 s	600 (0 bar) 55-138 (40-153)	1480 (0,75 bar) 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	1600	max. 4,0	0,75	K KF MS SVS	3,2-3,4 5,7-6,0 1,2-1,4 5,7
	1570	(8,0-16,0)	0,75		
	1480	(39,8-44,2)	0,75		
	1000*	30,5-34,5 (31,8-36,2)	0,30		
	600	(22,0-28,0)	0		
switch-off electr.	400	0		A B	
Idle stop	600 475	max.3,0 (4,0-12,0)			
End stop	350	min.32,0			
	450	max.38,0			
2.4 Solenoid	cut-in voltage rated voltage	min.10,0 Volt 12 V			

Observations

* LDA-stroke 4,5 mm
Use adjusting nut
(46) to correct.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 MAN 5,6 m

2. Edition

En

supersedes
MAN
company.
engine. D 0226 MLE
154 kW/2800 min⁻¹

Overflow temperature 45° C MAN-Nr. 2-7643

VE 6/12 F 1400 R 199-1
0 460 426 062

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	3,1 - 3,5 mm		
1.2 Supply pump pressure	800	5,2 - 5,8 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	1000	132,5-133,5 cm ³ /1000 strokes		4,0
1.4 Idle speed regulation	300	15,0 - 21,0 cm ³ /1000 strokes		3,5
1.5 Start	1480	92,0 - 100,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	100	min. 90,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	800	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 1,4-2,2(1,1-2,5) (2,6-4,0)	800 4,1-4,9(3,8-5,2)	1100 4,5-5,3(4,2-5,6)	1400
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	200 2,3 - 2,9		1400 7,3 - 7,9	
Overflow delivery	n = rev/min cm ³ /10 s	400 42-83 (27-98)		55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)	Designation	for assembly and adjustment mm
End stop	1650 1600 1480 1400 1000 630	max. 2,0 6,0-14,0 (5,0-15,0) (91,0-101,0) 123,5-126,5 (122,0-128,0) (130,0-136,0) 130,0-134,0 (128,2-135,8)		K KF MS SVS	- 5,7-5,9 1,0-1,2 2,0
switch-off		~		A B	
Idle stop	300 350 400 380 430		(13,0-23,0)		Observations
End stop	max. 2,0 min. 120,0 max. 135,0				
2.4 Solenoid	cut-in voltage test voltage				

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02.86

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 6/10 F 2400 L 216
0 460 406 049

Overflow temperature 45° C

supersedes
company: VW
engine: 087 T

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers.

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	1,4-1,8 mm	0,8	
1.2 Supply-pump pressure	1500	5,7-6,3 bar (kgf/cm²)	0,8	
1.3 Full-load delivery with charge-air pressure	1500	45,5-46,5 cm³/1000 strokes	0,8	
Full-load delivery without charge-air pressure	600	24,0-25,0 cm³/1000 strokes	0	max. 2,5
1.4 Idle regulation	415	6,0-10,0 cm³/1000 strokes	0	max. 2,0
1.5 Full-speed regulation	2675	13,0-19,0 cm³/1000 strokes	0,8	
1.6 Start	100	min. 40,0 cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA = 0,8 bar	n = rev/min mm	1500 (0,9-2,3)	2000 2,7-3,5(2,4-3,8)	2400 4,1-4,9(3,8-5,2)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2400 7,9-8,5
Overflow delivery	n = rev/min cm³/10 s	600 (0 bar) 41-83(26-98)		2400 (0,8 bar) 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation for assembly and adjustment mm
End stop	2850 2675 2575 2400 1500 800 *600 600	max. 6,0 25,0-35,0 37,5-39,5 43,8-48,2 32,0-33,0 37,0-40,0 (22,3-26,7)	(12,0-20,0) (26,0-34,0) (36,3-40,7) (30,3-34,7) (35,5-41,5) 0	0,8 0,8 0,8 0,25 0,8 0
switch-off electr.	400	0		A B
Idle stop	750 415 230 380	max. 4,0 min. 40,0 max. 30,0	(4,0-12,0)	
End stop				
2.4 Solenoid	cut-in voltage rated voltage 12 V.	min. 10 Volt		Observations * LDA-stroke 5,7 mm Use adjusting nut (46) to correct.

S

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP UU1/4 VW 2,4 s

1. Edition

En

TestOil ISO 4113

VE 6/10 F 2400 L 216-2 Overflow temperature 45° C
0 460 406 053supersedes -
company: VW
engine: 087 T

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	1,4-1,8 mm	0,8	
1.2 Supply-pump pressure	1500	5,7-6,3 bar (kgf/cm²)	0,8	
1.3 Full-load delivery with charge-air pressure	1500	45,5-46,5 cm³/1000 strokes	0,8	max. 2,5
Full-load delivery without charge-air pressure	600	24,0-25,0 cm³/1000 strokes	0	max. 2,0
1.4 Idle regulation	415	6,0-10,0 cm³/1000 strokes	0	
1.5 Full-speed regulation	2675	13,0-19,0 cm³/1000 strokes	0,8	
1.6 Start	100	min. 40,0 cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA = 0,8 bar	n = rev/min mm	1500 (0,9-2,3)	2000 2,7-3,5(2,4-3,8)	2400 4,1-4,9(3,8-5,2)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2400 7,9-8,5
Overflow delivery	n = rev/min cm³/10 s	600 (0 bar) 41-83(26-98)		2400 (0,8 bar) 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2850 2675 2575 2400 1500 800 *600 600	max. 6,0 (12,0-20,0) 25,0-35,0(26,0-34,0) 37,5-39,5(36,3-40,7) (43,8-48,2) 32,0-33,0(30,3-34,7) 37,0-40,0(35,5-41,5) (22,3-26,7)	0,8 0,8 0,8 0,8 0,8 0,25 0,8 0	K KF MS SVS	3,2-3,4 6,3-6,6 1,4-1,6
switch-off electr.	400	0		A B	
Idle stop	750 415 230 380	max. 4,0 (4,0-12,0) min. 40,0 max. 30,0			
2.4 Solenoid	cut-in voltage rated voltage 12 V	min. 10 Volt		Observations * LDA-stroke 5,7 mm Use adjusting nut (46) to correct.	

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 1,6 W 17

1. Edition

En

supersedes -
company VW
engine 086

Testoik-ISO 4113

VE 4/9 F 2400 R 221
0 460 494 179

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1250	2,1 - 2,5 mm		
1.2 Supply pump pressure	1250	4,0 - 4,6 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	-	cm³/1000 strokes		
Full-load delivery with charge-air pressure	1500	31,5 - 32,5 cm³/1000 strokes		
1.4 Idle speed regulation *	A 800	3,0 - 4,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	- 2600	11,0-17,0 cm³/1000 strokes		
1.6 Full-load speed regulation	100	min. 35,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	1250			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,0-1,8(0,7-2,1)	1250 (1,6-3,0)	1800 4,1-4,9(3,8-5,2)	2400 6,1-6,9(5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,1-2,7			2400 7,3-7,9
Overflow delivery	n = rev/min cm³/10 s	600 41-83(26-98)			2400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2800 2600 2500 2400 1500 600	max. 4,0 (10,0-18,0) 20,0-30,0 (21,0-29,0) 26,8-28,8 (25,6-30,0) (29,8-34,2) 20,2-23,2 (18,7-24,7)		K KF MS SVS	3,2-3,4 5,7-6,0 1,3-1,5
switch-off electr.	400	0		A B	
Idle stop	A 550 B 375 B 425 C 525 200 350	max. 4,5 12,0-14,0(9,0-17,0) 5,5- 8,5(3,0-11,0) 7,0- 9,0 min. 35,0 max. 30,0			
End stop					
2.4 Solenoid	Cut-in voltage test voltage	min. 10 Volt rated voltage 12 V		Observations	

* Setting of the residual fuel delivery.
Setting of the idle speed (LFG) according to VDT-I-460/135

G23

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12.85

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 1,6 W 16

1. Edition

En

Testoil ISO 4113

VE 4/9 F 2250 R 223
0 460 494 182

supersedes
company VW
engine 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/1

1. Settings		Rot speed rev/min	Settings	Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel		1250	2,9-3,3 mm	0,75	
1.2 Supply pump pressure		1250	4,2-4,8 bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure		1500	43,5-44,5 cm³/1000 strokes	0,75	
Full-load delivery with charge-air pressure		600	23,5-24,5 cm³/1000 strokes	0	
1.4 Idle speed regulation *	A	800	2,5-3,5 cm³/1000 strokes	0	
1.5 Start		2525	13,0-19,0 cm³/1000 strokes	0,75	
1.6 Full-load speed regulation		100	min. 35 cm³/1000 strokes	0	
1.7 Load-dependent start of delivery		1250		0	

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min	1000	1250	1800	2250
LDA = 0,75 bar	mm	1,8-2,6(1,5-2,9)(2,4-3,8)	4,7-5,5(4,4-5,8)	6,1-6,9(5,8-7,2)	
2.2 Supply pump	n = rev/min	600		2250	
LDA = 0,75 bar	bar (kgf/cm²)	2,3-2,9		7,0-7,6	
Overflow delivery	n = rev/min cm³/10 s	600 (0 bar)		2250 (0,75 bar)	
		41-83(26-98)		55-138(40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2700	max. 4,0	0,75	K	3,2-3,4
	2525	(12,0-20,0)	0,75		
	2425	25,5-35,5	0,75		
	2250	(26,5-34,5)	0,75		
	1500	38,0-40,0	0,75	KF	5,7-6,0
	1000 **	(36,8-41,2)	0,75		
	600	41,8-46,2	0,75	MS	1,2-1,4
	600	33,5-34,5	0,30		
switch-off		(31,8-36,2)		SVS	
		32,0-35,0	0,75		
		(30,5-36,5)			
		(21,8-26,2)	0		

Idle stop	B 375	12,0-14,0(9,0-17,0)		
	B 425	5,5-8,5 (3,0-11,0)		
	C 525	7,0-9,0		
End stop	250	max. 40,0		

2.4 Solenoid	Cut-in voltage test voltage	min. 10 Volt	rated voltage 12 V.	
--------------	--------------------------------	--------------	---------------------	--

3. Dimensions

for assembly and adjustment mm

Observations:
 * Setting of the residual fuel delivery.
 Setting of the idle speed (LFG) according to VDT-I-460/135

** LDA-stroke 6,8 mm

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12.85

G24

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VWW 1,6 W 15

1. Edition

En

ISO 4113

VE 4/9 F 2400 R 224
0 460 494 185supersedes
company: VW
engine: 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1250	2,1-2,5 mm		
1.2 Supply pump pressure	1250	4,0-4,6 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	-		cm³/1000 strokes	
Full-load delivery with charge-air pressure	1500	31,5-32,5 cm³/1000 strokes		
1.4 Idle speed regulation *	A 800	3,0-4,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	2600	11,0-17,0 cm³/1000 strokes		
1.6 Full-load speed regulation	100	min. 35,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	1250			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,0-1,8(0,7-2,1)	1250 (1,6-3,0)	1800 4,1-4,9(3,8-5,2)	2400 6,1-6,9(5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,1-2,7			2400 7,3-7,9
Overflow delivery	n = rev/min cm³/10 s	600 41-83(26-98)			2400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2800 2600 2500 2400 1500 600	max. 4,0 (10,0-18,0) 20,0-30,0 (21,0-29,0) 26,8-28,8 (25,6-30,0) (29,8-34,2) 20,2-23,2 (18,7-24,7)	
switch-off electr.	400	0	
Idle stop	A 550 B 375 B 425 C 525	max. 4,5 12,0-14,0 (9,0-17,0) 5,5-8,5 (3,0-11,0) 7,0-9,0	
End stop	200 350	min. 35,0 max. 30,0	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions
for assembly and adjustment

Designation	mm
K	3,2-3,4
KF	5,7-6,0
MS	1,3-1,5
SVS	3,2
A	
B	

Observations

* Setting of the residual fuel delivery.
 Setting of the idle speed (LFG) according to VDT-I-460/135

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 MWM 5,9 a 3

1. Edition

En

PES 6 A 80 D 320 RS 1271
Komb.-Nr. 9 400 085 261

RSV 350-1250 AOB 2029-3

supersedes
company MWM
engine D 229-6

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke 2,2-2,3
(2,15-2,35) mm from BDC RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
		2	3				
1250	8,2-8,3	5,0-5,1		0,25(0,4)			
	5,9-6,1	0,7-1,0		0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-1,0	-	-	-	ca. 26	350	5,5	1250	8,2-8,3
	x = 3,0						100	min.19,0		
(2a)	7,2	1290-1300					350	5,9-6,1	500	9,8-9,9
	4,0	1320-1350					490-550	= 2,0		
	1450	0,3-1,7							800	9,1-9,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
1250	49,5-50,5 (48,0-52,0)	1290-1300*	500	50,5-52,5 (48,5-54,5)	100	19,0-21,0 mm RW	350	6,0
			800	51,0-53,0 (49,0-55,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 FIA 2,6 d 1

1. Edition

En

PES 3 A 90 D 410 RS 2317
Komb.-Nr. 9 400 093 204

EP/RSV 325-1100 A 1 B 1015 L

supersedes-
company Fiat
engine -

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1080	8,5-8,6	6,0-6,1	0,3 (0,5)			
200	8,9-9,1	3,0-4,0	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	4 Control-lever deflection in degrees 7	Lower rated speed rev/min 8	Control rod travel mm 9	3 Torque control rev/min 10	Control rod travel mm 11
ca. 61	1100 1140 1190	16,0 11,5 5,5	without auxiliary spring	ca. 24	325	6,0-6,5	500	0		
	1170 1190 1230 1280	7,0-9,0 3,6-6,2 1,4-2,8 0,3-1,0			100 325 400 450 520	19,0-21,0 6,3-6,7 2,5-4,8 1,0-3,0 0,3-1,0	4,0	1,3-1,7		
2a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min	6 Rotational-speed limitat Note changed to) rev/min	3a Fuel delivery characteristics rev/min	Starting fuel delivery idle rev/min	5 Idle stop Control rod travel mm 8
1	2	3	4	7
1080	60,0-61,0 (58,0-63,0)	1120-1130*	-	min.140,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 FIA 2,6 d 2

1. Edition

En

PES 3 A 90 D 410 RS 2317
Komb.-Nr. 9 400 093 211

EP/RSV 325-1200 A 1 B 2037 L

supersedes -
company Fiat
engine

1-3-2 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1180	9,6-9,7	7,4-7,5	0,3 (0,5) 0,25(0,45)			
200	8,9-9,1	3,0-4,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
ca. 63	1200	16,0	without auxiliary spring	ca. 22		325	6,0-6,5	100	19,0-21,0	-	-
	1250	10,2					100				
2a	1290	6,0	with auxiliary spring			325	6,3-6,7	325	1,4-3,2	400	-
	1230	7,9-9,5					400				
	1280	2,0-3,8				450	0,3-1,0	450	0,3-1,0	550	-
	1300	1,0-2,0					550				
	1320	0,3-1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit Note changed to) rev/min	3a	Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	4	5	6	7	8	9	
1180	74,0-75,0 (72,0-77,0)	1210-1220*	-	-	100	min.138,0	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

WPP 001/4 FIA 2,6 d 3

1. Edition

En

PES 3 A 90 D 410 RS 2317 EP/RSV 325-1200 A 1 B 2068 DL
 Komb.-Nr. 9 400 093 212
 1-3-2 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
 company Fiat
 engine 34/1001
 54 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25
 Port closing at prestroke mm (from BDC)
 (2,10-2,30)

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
		1	2				
1180	9,8-9,9	7,5-7,6		0,3 (0,5)			
	6,9-7,1	0,8-1,3		0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-1,0	-	-	-	ca. 24	325	6,0	1180	9,8-9,9 9,9-10,2 10,6-10,7
	X =						100	19,0		
ca. 64	8,8	1240-1250					325	6,4-6,6	800	500
	4,0	1270-1300					490-550	= 2,0		
(2a)	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop	
rev/min	cm³/1000 strokes	Note changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1180	74,5-75,5 (72,5-77,5)	1240-1250*	800	69,0-71,0 (66,5-73,5)	100	138,0-178,0 = 19,0-21,0 mm RW	-	-
			500	67,0-69,0 (64,5-71,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 F1A 3,5 e

1. Edition

En

PES 4 A 90 D 410 RS 2318 EP/RSV 325-1200 A 2 B 2037 L
Komb.-Nr. 9 400 093 214

supersedes
company Fiat
engine 44/1009
66 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1180	10,0+0,1	7,7-7,8	0,3(0,5)	325		
	6,9-7,1	0,8-1,3	0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	① Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	② Lower rated speed		③ Torque control rev/min	⑤ Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-1,0	-	-	-	ca. 28	325	5,5	500	10,0-10,2
	X =						100	min. 19,0		375
	9,0	1240-1250					325	5,9-6,1		11,3-11,8
(2a)	4,0	1300-1330					480-540=2,0			
	1450	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	rev/min	cm³/1000 strokes	⑥ Rotational-speed limit Note changed to rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle	⑤	④a Idle stop Control rod travel mm
				rev/min	cm³/1000 strokes			
	1180	76,5-77,5 (74,5-79,5)	1240-1250*	-	-	100	148,0-183,0 =19,0-21,0 min RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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1,86

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 FAL 7,4 a 1

1. Edition

En

PES 6 A 90 D 410 RS 2361 RSV 325-1100 A 1 B 1015 L
Komb.-Nr. 9 400 093 200

supersedes
company
engine

Fiat-Allis

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
		1	2	3	4	5	6
1080	9,6-9,7	7,2-7,3		0,3(0,5)			
	8,9-9,1	3,0-4,0		0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	① Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min	② Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
ca. 67	1100	16,0	without auxiliary spring	ca. 26	325	5,5-6,0	1080	0	1080	0
	1160	11,9			100	19,0-21,0				
	1220	6,0			325	5,8-6,2				
②a	1200	7,0-9,0	with auxiliary spring	400	400	2,0-4,0	500	0	500	1,3-1,7
	1240	3,6-5,5			450	1,0-3,2				
	1270	1,2-3,6			530	0,3-1,0				
	1380	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min	⑤ cm³/1000 strokes	⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle rev/min	⑤ cm³/1000 strokes	④a Idle stop Control rod travel mm	
			4	5				
1080	71,5-72,5 (69,5-74,5)	1120-1130*	-	-	100	min. 140,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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1.86

H7

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 FAL 7,4 a 2

1. Edition

En

PES 6 A 90 D 410 RS 2361
Komb.-Nr. 9 400 093 201

EP/RSV 325-1150 A 1 B 1015 L

supersedes
company Fiat-Allis
engine

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery		Spring pre-tensioning (torque-control valve) mm
		1	2	3	4	5	6	
1300	10,7+0,1	8,6-8,7		0,3 (0,5)	0,25(0,45)			
	200	8,9-9,1	3,0-4,0					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	2	3	4	5	6		7	8	9	
ca. 66	1150	16,0	without auxiliary spring	ca. 25	325	5,5-6,0	1130	500	400	0
	1210	10,4					100	19,0-21,0	400	0
2a	1250	5,7				325	5,8-6,2	400	2,2-4,6	1,3-1,7
	1220	7,8-11,0	with auxiliary spring	400	450	450	2,2-4,6	450	1,0-3,0	
	1250	4,0-7,3					550	550	550	0,3-1,0
	1300	0,8-3,0								
	1400	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limita Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
1130	85,5-86,5 (83,5-88,5)	1170-1180*	-	-	100	min.140,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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H8

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 FAL 7,4 a 3

1. Edition

En

PES 6 A 90 D 410 RS 2361 Z
Komb.-Nr. 9 400 093 202

EP/RSV 325-1150 A 1 B 1015 L

supersedes
company -
engine Fiat-Allis

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1130	10,1+0,1	7,9-8,0	0,3 (0,5)			
200	8,9-9,1	3,0-4,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	① Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 66	1150	16,0	without auxiliary spring	ca. 25	325	ca. 25	325	5,5-6,0	1130	0
	1210	10,4					100	19,0-21,0	500	0
	1250	5,7					325	5,8-6,2	400	1,3-1,7
②a	1220	7,8-11,0	with auxiliary spring	400	480	400	400	1,8-4,4		
	1250	4,0-7,3					480	0,3-2,4		
	1300	0,3-3,0					500	0,3-1,0		
	1400	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤	④a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	4 rev/min	6 rev/min	7 cm³/1000 strokes	8 rev/min	9
1130	78,5-79,5 (76,5-81,5)	1170-1180*	-	-	100	min.140,0	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 KHD 6,1 b 2

2. Edition

En

PES 6 A 85 D 410/3 RS 2366

EP/RS 325/1325 AOB 709 DL

AOC 709 DL

Komb.-Nr. 0 400 866 063

supersedes 4.85

company KHD

engine BF 6 L 913

88 kW/2650 min⁻¹ (1)

118 kW/2650 min⁻¹ (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 -2,0
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1325	11,4+0,1	7,6-7,7	0,3(0,45)	0,3(0,05)		
200	8,9-9,1	1,6-2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	10	11
loose	800	0,3-0,7	-	-	-	VH ca.66	325	6,0	850	11,9-12,1
	X = 7,0					FH ca.30	400	2,7-3,7	500	11,9-12,1
VH ca.66	10,4	1355-1365					800	2,7-2,9		
FH max.	4,0	1450-1480					1300	2,0-2,2		
(2a)	1630	0-1,0					1400	0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limitat Note changed to 1 rev/min	3a Fuel delivery characteristics			Starting fuel delivery Idle		5	4a Idle stop	
rev/min	cm ³ /1000 strokes	3	4	5	rev/min	cm ³ /1000 strokes	6	7	rev/min	control rod travel mm
LDA 1325 (1)	0,5 bar 76,0-77,0 (74,0-79,0)	1355-1365*	LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	118,5-128,5 =18,0-18,4 mm RW			-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

1.88

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The numbers denote the sequence of the tests

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed rev/min		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9	rev/min	Control rod travel mm
loose	800	0,3-0,7	-	-	-	VHca.60	325	8,3	1325	11,7-11,8
	X =					FHca.35	550	3,5-4,0	800	12,8-13,1
VHca.60	9,5	1370-1380							600	13,1-13,4
FH max.	4,0	1460-1490								
(2a)	1600	0,3-0,7								

TestOil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	Control rod travel mm
	rev/min	cm³/1000 strokes	Note: changed to ...) rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	
(2) LDA	0,6 bar	1370-1380*	LDA 800	0,6 bar 82,0-85,0		100	12,0-13,0 mm RW	-
1325	80,0 - 82,0 (78,0-84,0)		LDA 500	(80,0-88,0) 0 bar 61,5-64,5 (59,5-66,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 700 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PES6A..RS2366 +EP/RS..A0B 709DL AOC 709DL	(1) 0,50	0,38 0,10	11,4-11,5 11,1-11,2 9,4- 9,8
	(2) 0,42	0,27	12,8-12,9 12,1-12,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 KHD 6,1 b 3

i. Edition

En

PES 6 A 85 D 410 RS 2366 EP/RS 325/1325 AOB 2057 DL
Komb.-Nr. 9 400 093 215

supersedes
company
engine

KHD

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1.9-2.0 mm (from BDC)
(1.85-2.05)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1325	11,4+0,1	7,6-7,7	0,3(0,5)			
200	8,9-9,1	1,6-2,2	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control Control rod travel rev/min	10	11
	Control rod travel mm	Control-rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm			
VHca.70	1325	16,0	without auxiliary spring	VHca.70 FH	325	8,3	1325	11,4-11,5	1100	11,9-12,1	550
	1400	12,5			400	6,0-6,8					
	1500	6,9			600	3,5-4,0					
VHca.70 FH max. (2a)	1325	15,7-16,3	with auxiliary spring		1000	3,2-3,7	12,6-12,8	11,9-12,1	550	12,6-12,8	
	1340	15,2-15,8			1300	2,2-2,8					
	1550	2,8-4,8			1400	0					
	1630	0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min	5 Idle stop Control rod travel rev/min			
1	2	3	4	6	7	8	9
LDA 1325	0,5 bar 76,0-77,0 74,0-79,0	1355-1365*	LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	18,0 mm RW	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

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1.86

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

700

rev/min decreasing pressure - in bar gauge pressure

increasing

KHD 6.i b 3

-2-

Pump/governor	Setting	Measurement		Control rod travel mm	diminution difference (1)
		Gauge pressure =	bar		
PES 6 A..RS 2366 +EP/RS..AOB 2057	0.50 DL		0.37 0.09		11.4-11.5 11.1-11.2 9.4-9.8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 6,1 a 4

1. Edition

En

PES 6 A 85 D 410 RS 2415
Komb.-Nr. 9 400 093 227

RSV 325-1150 A1B 1111 L

supersedes -
company Deutz Argentinien
engine BF 6 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0
 (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	11,3+0,1	7,3-7,4	0,3 (0,5)			
325	7,9-8,1	0,9-1,3	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-1,0	-	-	-	ca. 27	325	7,5	1150	11,3-11,4
	x = 5,0						100	min. 19,0	500	12,0-12,1
ca. 60	10,3	1190-1200					325	7,9-8,1	800	12,2-12,5
2a	4,0	1220-1250					540-610	= 2,0		
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limit Note changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery idle		5 Idle stop Control rod travel mm	
	1	2	3	4	5	6	7	8
1150	72,5-73,5 (70,5-75,5)		1190-1200*	500	78,5-80,5 (76,0-83,0)	100	19,0-21,0 mm RW	-
				800	75,5-77,5 (73,0-80,0)			-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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12.85

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 9,6 s

2. Edition

En

PES 6 A 95 D 410 RS 2416

RQ 300-1250 AB 1211 L

supersedes 9.85

company: KHD

engine BF 6 L 413 FR
123 kW/2500 min⁻¹

Komb.-Nr. 0 400 846 544

Testoil-ISO 413

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9 - 2,0
(1,85-2,05) mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	10,0+0,1	9,9-10,1	0,35(0,6)	2	3	6
	6,4-6,6	1,9-2,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	① 1a	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 3	① 1 rev/min mm
1	2	3	② 2a	4	5	6	④ 4	7	8	9	10	11
max.	1280	15,2-17,8		-	-	-		ca. 18	100	min. 8,0	250	1,0-1,2
ca. 50	9,0	1290-1300							300	6,4-6,6	500	3,2-3,5
	4,5	1350-1380								000	000	6,2-6,4
	1500	0 - 1,0									250	8,3
							③ 3a					

Torque control travel a = 0,30 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point		Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	④ 4a	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	④ 4a	4	5	6	8
1250	99,0-101,0 (97,0-103,0)	1290-1300 *	600	91,5-94,5 (89,0-97,0)	100	120,0-130,0 (117,0-133,0)	1250
						= 14,2-14,6 mm RW	10,0+0,1 600
						300	10,2+0,1 715
							10,1+0,2 765
							10,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

BOSCH

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 OMB 4,4 e

3. Edition

En

PES 4 A 90 D 410 RS 2442

RQV 325-1050 AB 922 L

supersedes 4.85

Komb.-Nr. 0 400 844 066

company: OMB
engine: CO 3..

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③	rev/min 10	mm 11
ca. 68	1060 1120 1220 1310	15,0-18,0 9,7-14,4 0-7 0	-	-	-	-	③a	ca. 18	150 250 380 670	9,6-11,7 7,4-10,0 2,0- 5,0 0	1060	8,3	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b rev/min 3		Fuel delivery characteristics high idle speed ⑤a rev/min 4		Starting fuel delivery idle switching point ⑥ rev/min 6		Torque-control travel Control rod travel ⑤ rev/min 8	
rev/min 1	cm³/1000 strokes 2	rev/min 4a	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	cm³/1000 strokes 9	rev/min 8	cm³/1000 strokes 9
1050	83,5-84,5 (81,5-86,5)	1090-1100*	-	-	100	15,0-15,6 mm RW	-	-	-
					Change-over point 200-270 U/min				

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 OMB 1,6 C

2. Edition

En

PES 4 A 90 D 410 RS 2518 RQV 300-1400 AB 1018 L
Komb.-Nr. 0 400 844 072

supersedes 3.85
company OM-Brescia
engine 8340.04.300
74 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	10,8+0,1	7,0 - 7,1	0,3(0,45)			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	7	8	9	10	11		
max.	1410	15,0-18,3		-	-	-	ca. 12	100	min. 7,9	250	0-1,0		
ca. 66	9,8	1440-1450						300	6,3-6,5	630	2,3-3,1		
	4,0	1500-1530						600-760=2,0	1020	4,5-4,9			
	1650	0-1,0						950 max. 1,0	1400	8,1			
(3a)													

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	2	3	4	5	6	7	8	9
1400	69,5-70,5 (67,5-72,5)	1440-1450*	-	-		100	16,2-16,6 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps **(1A)**

and Governors

40

WPP 001/4 KHD 4,1 f

1. Edition

PES 4 A 80 D 410 RS 2523

RS 325/1400 AOB 2212 L

En

Komb.-Nr. 9 400 085 256

supersedes
company Deutz Argentinien
engine F 4 L 913

TestOil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9-2,0

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1400	12,0+0,1	6,9-7,0	0,25 (0,4)	325	0,2 (0,35)	
	8,4-8,6	1,0-1,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
loose	800	0,3-1,0	FH ca.28	325	8,5	1400
	X = 2,0			280	8,8-9,6	500
VHca .55 (2a)	11,0	1440-1450		420	5,6-6,4	1100
	4,0	1500-1530		500	max. 4,4	12,3-12,6
	1600	0,3-1,7		1300	max. 3,8	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	3	4	5	6	7	8	9
1400	69,0-71,0 (67,5-71,5)	1440-1450*	500	63,0-65,0 (60,5-66,5)		100	19,0-21,0 mm RW	-	-
			1100	66,0-68,0 (64,0-70,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 8,3 K 8

1. Edition

En

PE 6 A 95 D 410 RS 2525 RSV 250-1200 A 5 C 2199 L
Komb.-Nr. 0 400 676 176

- superseded
company DAF
engine DHTD 825

Testoil 100 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1
(1,95-2,15) mm (from BDC), RW = 9,0-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,6+0,1	10,9-11,0	0,35(0,6)			
250	6,0-6,2	0,8-1,2	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed			4	Lower rated speed		3	Torque control
Degrees of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10
loose	800 0,3-0,7 x = 4,25	- - - -	ca 21	250	5,6	1000	12,6-12,7		
					100	min. 19,5	400	12,8-12,9	
ca. 55	11,6 1230-1240 4,0 1325-1355 2a 1490 0,3 - 1,4				250	6,0-6,2	300	13,0-13,5	
					490-550	= 2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit Note changed to .. rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
LDA 1000	0,7 bar 109,0-110,0 (107,0-112,0)	1230-1240 *	LDA 600	0 bar 85,5-86,5 (83,5-88,5)		100	125,0-135,0 (122,0-138,0) = 19,5- 21,0 mm RW 8,0-12,0 (5,5-14,5)	-	-
						250			

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H19

D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 K 8 -2 -

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Selling Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- mm (1)	diminution difference
PE 6 A..RS 2525 + RSV..A5C 2199 L	0,70		0,30 0,26 0		12,6-12,7 12,3-12,4 11,9-12,1 11,6-11,7	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 5.1e1
1. Edition

En

PES 5 A 80 D 410 RS 2526 EP/RS 325/1400 AOB 699 DL
Komb.-Nr. 9 400 093 230
1-3-5-4-2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
KHD
company
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

TestOil ISO 4113

1.9-2,0
(1.85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	11,2-11,3	6,5-6,6	0,25(0,4)			
325	8,4-8,6	1,0-1,3	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-1,0	-	-	-	VH ca.60	325	8,3	1400	11,2-11,3
	X =					FH	300	8,4-9,1	700	11,8-12,1
VH ca.60	8,7	1400-1450					400	6,0-6,8	500	11,8-12,1
FH max.	4,0	1500-1530					550	3,5-4,0		
(2a)	1600	0,3-1,7					1350	2,8-3,2		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitat		3a	Fuel delivery characteristics		Starting fuel delivery Idle	5	4a	Idle stop
	Test oil temp. 40°C (104°F)	rev/min cm³/1000 strokes		Note changed to 1 rev/min	3		4	5	cm³/1000 strokes	6	7	8
1400	64,5-65,5 (63,0-67,0)		1430-1440*	700	58,4-60,4 (56,4-62,4)		500	55,9-57,9 (53,9-59,9)		100	100,0-140,0	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 6,1 d 2

1. Edition

En

PES 6 A 80 D 410/3 RS 2527 RSV 325-900 A 1 C 602-2L
Komb.-Nr. 0 400 866 117

supersedes
comrankHD

engine F 6L 913
65kW/1800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0
(1,85-2,05) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
880	12,2+0,1	5,1-5,2	0,25(0,4)			
325	9,3-9,5	0,9-1,5	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9		
loose	800	0,3-0,7	-	-	-	ca. 23	325	9,4	-	-
	X = 3,25						140	min. 19,5		
ca. 46	11,2	920-930					325	9,3-9,5		
2a	4,0	945-975					365-425	= 2,0	**	
	1110	0,3-1,4								

The numbers denote the sequence of the tests* Set idle-speed auxiliary spring at 2 mm control-rod travel,

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop		
	rev/min	cm ³ /1000 strokes	Note changed to) rev/min	4 rev/min	5 cm ³ /1000 strokes	6 rev/min	7 cm ³ /1000 strokes	8 rev/min	9 Control rod travel mm
880	50,5-51,5 (49,0-53,0)	920-930	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 6,1 L

1. Edition

En

PES 6 A 80 D 410 RS 2527

RS 325/1400 AOB 2212 L

Komb.-Nr. 9 400 085 259

supersedes
company Deutz Argentinien
engine F 6 L 913
142 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

^{1,9-2,0}
(1,85-2,05)

Port closing at prestroke mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	12,0+0,1	6,9-7,0	0,25 (0,4)	0,2 (0,35)		
325	8,4-8,6	1,0-1,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	FH ca. 28	325	8,5	1400	12,0-12,1
	X = 2,0						280	8,8-9,6	500	12,8-12,9
VHca.55	11,0	1440-1450					420	5,6-6,4	1100	12,3-12,6
FHmax.	4,0	1500-1530					550	max. 4,4		
(2a)	1600	0,3-1,7					1300	max. 3,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load step Test oil temp. 40°C (104°F)	rev/min cm³/1000 strokes	6 Rotational-speed limit Note changed to rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle rev/min	5 cm³/1000 strokes	4a Idle stop Control rod travel rev/min
			4 rev/min	5 cm³/1000 strokes			
1400	69,0-70,0 (67,5-71,5)	1440-1450 *	500	63,0-65,0 (60,5-66,5)	100	19,0-21,0 mm RW	-
			1100	66,0-68,0 (64,0-70,0)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 1 g 20

1. Edition

En

PES 3 A 80 D 410/3 RS 2540 EP/RSV 325-1075 A 1 B 1111 DL
Komb.-Nr. 9 400 093 400

supersedes -
company KHD-Argentinien
engine F 3 L 913
Traktor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 -2,0
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	12,0+0,1	6,2-6,3	0,3(0,45)			
325	7,9-8,1	0,4-0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min 2	Control rod travel mm 3	Intermediate rated speed 4	5	6	④ Control-lever deflection in degrees 7	Lower rated speed rev/min 8	Control rod travel mm 9	③ Torque control rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	325	5,5	1050	12,0-12,1
	X =						325	5,9-6,1		
ca. 57 ②a	11,0	1115-1125					495	-	800	12,1-12,4
	4,0	1160-1190					800	555=2,0		
	1250	0,3-1,7						max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limit Note changed to rev/min	③a Fuel delivery characteristics rev/min	Starting fuel delivery Idle rev/min	⑤ cm³/1000 strokes	④a Idle stop Control rod travel mm
rev/min	2	3	4	5	8
1050	61,0-63,0 (59,0-65,0)	1115-1125*	800	59,5-62,5 (59,0-63,0)	100
			500	64,0-67,0 (63,5-67,5)	99,5-139,5 =19,0-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

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1.86

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 d

6. Edition

En

PES 6 A 90 D 210 RS 2628 RSV 325-1200 AOB 2140 L
 Komb.-Nr. 0 400 866 104 AOC 2140 L

supersedes 5.84

company Ford

engine Dover 363 T/C

Test oil 150-100-113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke 2,7-2,8
(2,65-2,85)

At port closing the locating pin must engage

mm (from BDC) in the slot of the pointer.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1175	11,5+0,1	8,4 - 8,5	0,3(0,45)			
350	5,1-5,3	0,5 - 1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3 - 1,0	-	-	-	ca. 69	350	4,8	1175	11,5+0,1
	X =	4,0					100	min. 19,5	500	11,5+0,2
ca. 69	10,5	1240-1250					350	5,2-5,4		
(5)	4,0	1365-1395					490-5	50= 2,0		
	1540	0,3 - 1,4					625	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.		(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA	0,7 bar	1240-1250 *	LDA	0 bar	100	76,0 - 90,0		-	-
1175	83,5-84,5 (81,5-86,5)		500	49,0 - 51,0 (47,0 - 53,0)		(73,0-93,0)	= 19,5-21,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

D. Adjustment Test for Manifold Pressure Compensator

FOR 5,9 d - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel mm	diminution (1)
PES 6 A .. RS 2628 mit .. AOB 2140 L	0,7		0 0,48 0,30		11,5 - 11,6 10,1 - 10,2 11,1 - 11,2 10,3 - 10,5	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 4,1 d 3

2. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1400 A 8 C 707 L

Komb.-Nr. 0 400 864 060

supersedes 8.85
KHD
company BF 4 L 913
engine 78 kW / 2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

; RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,7+0,1	8,3 - 8,4	0,3 (0,45)			
325	8,4-8,6	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm		Control rod travel mm rev/min			Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-0,7	-	-	-	ca. 22	325	8,0	1250	12,7-12,8	
	X = 5,25						100	min. 19,5	500	13,6-13,7	
ca. 62	11,7	1290-1300					325	8,4-8,6	1015	13,1-13,3	
(2a)	4,0	1390-1420					660	-	720 = 2,0		
	1560	0,3-1,4									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm ³ /1000 strokes	3	4	5	rev/min cm ³ /1000 strokes	6	7	8	9
LDA 1250	0,7 bar 82,5 - 83,5 (80,5 - 85,5)	1290-1300*	LDA 850 LDA 500	0,7 bar 84,5 - 86,5 (82,0 - 89,0) 0 bar 59,5 - 61,5 (57,5 - 63,5)	100	105,0-115,0 (102,0-118,0) = 17,1-17,5 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

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1,86

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

KHD 4,1 d 3 - 2 -

Pump/governor	Setting	Measurement		Control rod travel-mm	diminution-difference (1)
		Gauge pressure =	bar		
PES 4 A..RS 2638 + RSV..A 8 C 707 L	0,70	0		13,5 - 13,6	
		0,41		12,3 - 12,4	
		0,25		13,2 - 13,3	
				12,8 - 13,0	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 KHD 4,1 d

2. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1400 A 8 C 707-3 L

Komb.-Nr. 0 400 864 063

supersedes 8.85

company KHD

engine BF 4 L 913

78 kW/2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6
Port closing at prestroke (2,45-2,65) mm (from BGCRW = 9,0 - 12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1 250	12,7+0,1	8,3 - 8,4	0,3 (0,45)			
325	8,4-8,6	0,8 - 1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
loose	800	0,3 - 0,7	-	-	-	ca. 16	325	8,0	1250	12,7-12,8	
	X = 4,0						325	8,4-8,6	500	13,7-13,8	
ca. 54	11,4	1290-1300					610 - 670 = 2,0		850	13,5-13,6	
(2a)	4,0	1375-1405							950	13,2-13,4	
	1540	0,3-1,4									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limit		3a	Fuel delivery characteristics		Starting fuel delivery	5	4a	Idle stop
	Test oil temp 40°C (104°F)		Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	Idle	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA 1250	0,7 bar 82,5 - 83,5 (80,5 - 85,5)	1290-1300*	LDA 850 LDA 500	0,7 bar 84,5 - 86,5 (82,0 - 89,0) 0 bar 59,5 - 61,5 (57,5 - 63,5)		100	115,0-125,0 (112,0-128,0) =18,4-18,8 mm RW	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel: mm (1)	diminution difference
PES 4 A..RS 2638 +RSV..A8C 707-3L	0,70	0 0,39 0,25	13,7 - 13,8 12,3 - 12,4 13,5 - 13,6 12,8 - 13,0	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 VAU 5,4 a 1

3. Edition

En

PES 6 A 95 D 320 RS 2646
Komb.-Nr. 0 400 846 533

RQV 300-1300 AB 1163-1 R

supersedes 7.85
company: Vauxhall
engine. 330 T/C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6

(2,45-2,65)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
810	9,7-9,8	6,4-6,6	0,35(0,6)			
	5,9-6,1	0,8-1,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	Sliding sleeve travel 1 rev/min 10	mm 11
max.	1440	15,2-17,8	-	-	-	ca. 17	100	min. 7,4	275	0,9-1,1
ca. 61	8,7	1350-1360					300	5,9-6,1	500	3,1-3,5
	4,0	1455-1485					350-490		1000	5,7-5,8
	1600	0-1,0							1300	8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	Rotational-speed limitation intermediate speed 2b	Fuel delivery characteristics high idle speed 5a 5b	Starting fuel delivery Idle switching point 6	Torque-control travel Control rod travel 5 mm 8
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 8	rev/min 8
		4	cm³/1000 strokes 5	cm³/1000 strokes 7
810	63,5-65,5 (61,5-67,5)	1350-1360*	1200 500	71,5-74,5 (69,5-76,5) 52,0-55,0 (50,0-57,0)
				100 300
				97,0-107,0 (94,0-110,0) = 19,5-21,0 mm RW 8,0-14,0 (5,5-16,5)

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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Test Specifications

Fuel Injection Pumps (1A)

and Governors

40

WPP 001/4 MWM 4,1 b

4. Edition

En

PES 4 A 90 D 320/3 RS 2659 RSV 325-1500 A2B 505-2 R

Komb.-Nr. 0 400 864 057

supersedes 7.85
MWM
company D 266 B-4
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,95-3,05
(2,90-3,10) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	10,5+0,1	9,0-9,1	0,3 (0,45)			
325	6,4-6,6	1,1-1,7	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed			4	Lower rated speed		3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 0,3-1,0 x = 5,5	- - - -	4	5	6	ca.27	325 6,0	-	-
ca.66 2a	9,5 1540-1550 4,0 1590-1620 1780 0,3-1,7						100 min.19,5 325 6,4-6,6 460-520 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1500	89,5-90,5 (87,5-92,5)	1540-1550*	-	-	-	100	131,0-141,0 - (128,0-144,0) = 19,5- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 MWM 4,1b1
1. Edition

En

PES 4 A 90 D 320/3 RS 2659
Komb.-Nr. 0 400 864 057

RSV 325-1500 A 2 C 505 - 2 R

supersedes
company MWM
D 226 B-4
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,95-3,05
(2,90-3,10) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	11,2-0,1	9,0-9,1	0,3(0,5)			
325	7,0-7,2	0,8-1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever 1	① Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-0,7	-	-	-	ca. 24	325	6,6	-	-
	$x = 4,75$						100	min. 19,5		
ca. 61	9,5	1540-1550					325	7,0-7,2		
(2a)	4,0	1615-1645					465	- 525=2,0		
	1780	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑤ Rotational-speed limitat. Note changed to) rev/min	③a Fuel delivery characteristics		Starting fuel delivery idle	⑤	④a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
1500	89,5 - 90,5 (87,5 - 92,5)	1540-1550*	-	-	100	131,0-141,0 (128,0-144,0) = 19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

1.86

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② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MAN 11,4 h

2. Edition

En

PES 6 A 95 D 410 LS 2669
Komb.-Nr. 0 400 846 523

RQ 750 AB 1172 L

supersedes 9.84
company: MAN

engine: D 2566 ME
114 kW/1500 min⁻¹
MAN-Nr. 2-7365

Test oil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,5-1,6
Port closing at prestroke (1,45-1,65) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,1+0,1	11,8-12,0	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider: PRG check		Full-load speed regulation				Idle speed regulation				Torque control
Control rod travel rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm	
1	2	3	4	5	7	8	9	10	11	
-	-	-	-	11,0 4,0	750-755 775-785	-	-	-	-	

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 750-755 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics			Starting fuel delivery Idle speed	Control rod travel mm
rev/min	cm ³ /~1000 strokes	3	rev/min	cm ³ /~1000 strokes	5	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	
700	118,0-120,0 (116,0-122,0)	-	-	-	-	-	-

Checking values in brackets

2.86

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①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 8,0 o 1

1. Edition

En

PES 5 A 95 D 410 RS 2680 RQV 300-1150 AB 1217 L

Komb.-Nr. 0 400 845 082

1- 3- 5- 4- 2

0-72-144-216-288 \pm 0,5° (\pm 0,75°)

supersedes

KHD

company F 5 L 413 FRW

engine 85,0 kW/200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,5-1,6

Port closing at prestroke

(1,45-1,65)

mm (from BDC), RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,3+0,1	7,2-7,4	0,35(0,6)			
300	6,4-6,6	1,3-1,7				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed			Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 9	Sliding sleeve travel rev/min 10	Sliding sleeve travel mm 11
			Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6				
max.	1200	15,2-17,8	-	-	-	ca. 13	100	min. 8,0	300 1,3-1,5
ca. 64	7,3	1190-1200					300	6,4-6,6	500 3,4-3,6
	4,0	1230-1260					320-415		800 5,2-5,6
	1350	0-1,0							150 8,0

Torque control travel a = 1,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5a 5b		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel mm 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	rev/min 5	cm ³ /1000 strokes 6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	
1150	72,0-74,0 (70,0-76,0)	1190-1200*	700**	80,5-83,5 (78,0-86,0)	100	120,0-130,0 (117,0-133,0)	1150	8,3+0,1 500 9,7+0,1 840 9,3+0,2 1610 8,6+0,2	
			700	98,5-101,5 (96,0-104,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

** reduced fuel delivery

10.85

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Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 9,6 m 1

1. Edition

En

PES 6 A 95 D 410 RS 2681 RQV 300-1150 AB 1217 L
Komb.-Nr. 0 400 846 545

supersedes—
company. KHD
engine. F 6 L 413 FRW
102,0 kW/2300 min-1



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	8,3+0,1	7,2-7,4	0,35(0,6)			
300	6,4-6,6	1,3-1,7	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	1a	Degree of deflection of control lever	rev/min	Control rod travel	4	Degree of deflection of control lever	rev/min	Control rod travel	3	rev/min	mm
1	2	mm	2a	4	5	mm	6	7	8	mm	9	10	11
max.	1200	15,2-17,8		-	-	-		ca. 13	100	min.8,0	300	1,3-1,5	
ca. 64	7,3	1190-1200							300	6,4-6,6	500	3,4-3,6	
	4,0	1230-1260									800	5,2-5,6	
	1350	0-1,0									1150	8,0	

Torque control travel a = 1.40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation Intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel Control rod travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm	
1	2	3	4a	5	6	7	8	9	
1150	72,0-74,0 (70,0-76,0)	1190-1200*	700**	80,5-83,5 (78,0-86,0)	100	120,0-130,0 (117,0-133,0)	1150	8,3+0,1	
			700	98,5-101,5 (96,0-104,0)			500	9,7+0,1	
							840	9,3+0,2	
							1010	8,6+0,2	

Checking values in brackets

* 1 mm less control rod travel than set 2

** reduced fuel delivery

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WP 001/4 FOR 6,6a3

1. Edition

En

PES o A 95 v 410 RS 2688 RQV 350-1400 AB 1202-1L

Komb.-Nr. 9 400 085 263

supersedes
company Ford (FT0)
engine 6,6 l NA
140 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,15-3,25

(3,20-3,30)

mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1400	10,1+0,1	7,1-7,3	0,35(0,6)			
	350	6,4-6,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1420	15,2-17,8		-	-	-	④	ca. 14	100	min. 9,0	350	1,3-1,6	
ca. 63	9,1	1440-1450					④		350	6,4-6,6	700	4,2-4,6	
	4,0	1540-1570					④		540- 600=2,0	1100	6,1-6,4		
	1700	0- 1,0					④			1420	8,6		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point		Torque-control travel
rev/min	cm³/1000 strokes	rev/min	④a	rev/min	cm³/1000 strokes	⑥	Control rod travel mm
1400	70,5-72,5 (68,5-/4,5)	1440-1450*	500	50,5-53,5 (48,0-56,0)	100	112,0-122,0 = 19,0- 21,0 mm KW	-

Checking values in brackets

* 1 mm less control rod travel than col 2

2.86

Testo ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 FOR 6,6a2

1. Edition

En

PES 6 A 95 D 410 RS 2688 RqV 375-1300 AB 1208-1L

Komb.-Nr. 9 400 085 262

supersedes
company Ford
engine b,b L TC
165 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

3,15-3,25
(3,10-3,30)

mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1300	12,1+0,1	8,6-8,8	0,35 (0,6)			
375	6,/-6,9	1,0-1,4	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	6	4	7	8	10
max.	1345	15,2-17,8	-	-	-	ca. 16	100	min. 10,0	350	1,3-1,6
ca. 63	11,1	1340-1350					375	6,7-6,9	700	4,1-4,5
	4,0	1450-1480					650-710=2,0		1100	6,3-6,6
	1600	0-1,0							1345	8,6,

Torque control travel a = 0,70mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,6 bar	1340-1350*	LDA	0,6 bar	100	115,0-125,0	1300	12,1+0,1
1300	86,0-88,0		900	86,0-89,0	=20,0-	21,0	600	12,8+0,1
	84,0-90,0			(83,5-91,5)	mm RW		800	12,6+0,2
LDA	0,6 bar		LDA	0 bar			900	12,4+0,3
600	83,0-86,0		600	57,0-59,0				
	80,5-88,5			(55,0-61,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2



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D. Adjustment Test for Manifold Pressure Compensator

FUR 6,6a2

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel mm	diminution difference (1)
PES 6 A..RS 2688 + RQV..AB 1208-1L	0,60		0 0,40 0,25			12,8-12,9 10,6-10,7 12,2-12,3 11,0-11,2

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 MWM 3,9a1

1. Edition

En

PES 4 A 90 D 320 RS 2702 RSV 350-1150 A2B 2129-7R
Komb.-Nr. 9 400 085 268

supersedes
company MWM
engine D 229-4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,65-2,75
(2,60-2,80) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,5-9,6	7,0-7,1	0,3(0,5)			
350	5,9-6,1	1,1-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
loose	800	0,3-1,0	-	-	-	ca. 23	350	5,5	1150	9,5-9,6	
		x = 3,75					100	min. 19,0			
ca. 46 (2a)	8,5	1190-1200					350	5,9-6,1	500	10,4-10,5	
	4,0	1225-1255					590-650	=2,0			
	1400	0,3-1,7							800	9,8-10,1	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)		6	Rotational-speed limitation Note changed to) rev/min		3a	Fuel delivery characteristics		Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	cm³/1000 strokes	rev/min	8	9		
1150	70,0-71,0 (68,0-73,0)	1190-1200*	500	67,0-69,0 (64,5-71,5)	100	19,0-21,0 mm RW			-	-		
			800	69,0-71,0 (66,5-73,5)	350	11,0-15,0 9,0-17,0						

Checking values in brackets

* 1 mm less control rod travel than col 2

3.86

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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 4,1 e 1

1. Edition

En

PES 4 A 85 D 410/3 RS 2707

RQV 300-1250 AB 1089-1 L

Komb.-Nr. 0 400 834 002

supersedes -

company: KHD

engine: BF 4 L 913 T

64 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6
(2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	12,0+0,1	7,0-7,1	0,3 (0,45)			
	300	4,9-5,1	1,0-1,6	0,25(0,45)		

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm	mm
1	2	3	1a	4	5	7	8	9	10	11	1
max.	1290	15,2-17,8		-	-	ca. 10	100	min. 6,4	250	0,5-0,7	
							300	4,9-5,1	450	3,1-3,3	
ca. 66	11,0	1290-1300					355-415	= 2,0	800	4,6-4,7	
	4,0	1375-1405							1100	6,6-6,8	
	1500	0 - 1,0							1300	8,7	
						3a					

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel			
rev/min	cm ³ /1000 strokes	rev/min	4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1250	69,5-70,5 (67,5-72,5)	1290-1300*	650	58,5-60,5 (56,0-63,0)	100	120,0-130,0 (117,0-133,0)	1250	12,0+0,1	
						= 19,3-15,7 mm RW	650	12,3+0,1	
							915	12,2+0,2	
							985	12,0-0,2	

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 VAL 2,7 a

1. Edition

En

PES 3 A 95 D 320 RS 2711
Komb.-Nr. 0 400 873 037
1-2-3 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

RSV 325-1175 AOC 2178-3 R

supersedes
company Valmet
engine 309 DS 4
45 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6
(2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,8+0,1	8,1-8,3	0,35 (0,6)			
325	5,1-5,3	0,9-1,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 27	325	4,7	1200	10,8-10,9
	x = 5,25						100	min.19,5	500	11,1-11,2
ca. 49	9,8	1240-1250					325	5,1-5,3	910	10,9-11,1
(2a)	4,0	1335-1365					440-500	= 2,0		
	1500	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note changed to rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8
1200	80,5-82,5 (78,5-84,5)	1240-1250*	500	64,5-67,5 (62,0-70,0)	100	205,0-215,0 (202,0-218,0) =19,5-21,0 mm RW 9,0-15,0 (6,5-17,5)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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12.85

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 FOR 6,6 f

1. Edition

En

PES 6 A 95 D 410 RS 2714 RQV 375-1300 A B 1208-1L
Komb.-Nr. 9 400 085 258

supersedes
company Ford
engine 6,6 TC
165 PS

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,15-3,25
(3,0 - 3,20) mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1300	12,1+0,1	8,6-8,8	0,35(0,6)			
	375	6,7-6,9	1,0-1,4	0,35(0,55)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	4	7	8	10	11
max.	1345	15,2-17,8	-	-	-	ca. 16	100	min. 10,0	350	13,-1,6
ca. 63	11,1	1340-1350					375	6,7-6,9	700	4,1-4,5
	4,0	1450-1480					600-710=2,0		1100	6,3-6,6
	1600	0-1,0							1345	8,6
						3a				

Torque control travel a = 0,70 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,6 bar	1340-1350*	LDA	0,6 bar	100	115,0-125,0	1300	12,1+0,1
1300	86,0-88,0 (84,0-90,0)		900	86,0-89,0 (83,5-91,5)	= 20,0- 21,0	mm RW	600	12,8+0,1
LDA	0,6 bar		LDA	0 bar			800	12,6+0,2
600	83,0-86,0 (80,5-88,5)		600	57,0-59,0 (55,0-61,0)			900	12,6+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2
3,80

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D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

FOR 6,6 f

-2-

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel: mm	diminution difference (1)
PES6A..RS2714 +RQV..AB 1208-AL	0,60		0		12,8-12,9	
			0,40		10,6-10,7	
			0,25		12,2-12,3	
					11,0-11,2	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 6,1 m

1. Edition

En

PES 6 A 95 D 410 RS 2715
Komb.-Nr. 0 400 846 548

RQV 300-1250 AB 1158-1 L

supersedes-
company: KHD
engine: BF 6 L 913
140 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0
(1,85-2,05) mm (from BDC); RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	14,0+0,1	9,5-9,7	0,35(0,6)			
	4,9-5,1	1,0-1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1265	15,2-17,8		-	-	-		ca. 9	100	min. 6,5	300	0,8-0,9	
ca. 67	13,0	1290-1300							300	4,9-5,1	600	3,6-3,9	
	4,0	1390-1420							360-420 = 2,0		900	5,2-5,4	
	1550	0-1,0									1200	7,8-7,9	
											1400	10,2	

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	②b rev/min	⑤a rev/min	⑥ rev/min	⑤ Control rod travel mm
1	2	3	4	6	8
LDA 1250	0,7 bar 94,5-96,5 (92,5-98,5)	1290-1300*	LDA 500	100 115,0-125,0 (112,0-128,0)	1250 500

Checking values in brackets

* 1 mm less control rod travel than col 2

1.86

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J21

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 m

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel: (1)	diminution difference
		Gauge pressure =	bar		
PES 6 A..RS 2715 + RQV..AB 1158-1L	0,70	0		14,0-14,1	
		0,39		10,2-10,3	
		0,20		13,1-13,2	
				11,4-11,6	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 IHC 7,6 c

4. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1103
 RQV 350-1300 MW 43-1
 0 403 446 132
 1-5-3-6-2-4 je 60° DHK 1 688 901 016
 207 + 3 bar

supersedes 9.83
 company IHC
 engine DT 466 B
 143,4 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,10
 (3,95-4,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	10,9+0,1	9,55-9,75	0,35(0,6)			
350	5,7-5,8	1,6-2,0	0,35(0,55)			
1300	10,9+0,1		0,65(0,7)			
500	9,4-9,5					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	8,0 1550	1440-1505 0-1,0				ca.13	100 350	min.9,0 5,7-5,8		
ca.61,5 ± 2,5	4,0	1470-1480				360-700 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	
LDA 900	0,9 bar 95,5-97,5 (93,5-99,5)			LDA 1300	0,7 bar 96,5-100,5 (94,5-102,5)	100	140-180		
				LDA 500	0 bar 63,5-65,5 (61,5-67,5)	350 220 100(80)	16,0-20,0 (13,5-22,5) 280(210-290)		Locking Unlocking

Checking values in brackets

* 1 mm less control rod travel than col 2

12.85

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure IHC 7,6c -2-

Pump/governor	Setting	Measurement	Control rod travel mm	diminution difference (1)
RS 1103 mit RQV.. MW 43-1	0,4	0,9 0 0,2	10,5-10,6 10,9-11,0 9,4-9,5 9,8-9,9	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to n = 350 1/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications

Fuel Injection Pumps ①A

and Governors

40

WPP 001/4 VOL 6,0 t

2. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1004
 RSV 325-1050 MW 4/308-1
 0 403 476 020

supersedes 7.84
 company Volvo
 engine TD 60 D
 112 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90
 (2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes 4	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
		2	3				
1020	10,8+0,1	8,65-8,85		0,35(0,6)			
	325	4,9-5,0	1,0-1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min			Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed			③ Torque control Control rod travel rev/min	③ Control rod travel mm
	Control rod travel mm	Control rod travel mm	rev/min	4	5	6		rev/min	Control rod travel mm	10		
loose	800	0,3-1,0					ca.26	325	4,3	350	11,2+0,1	
	x = 5,5							325	4,9-5,0	500	10,8+0,1	
ca.63 ②a	1090-1100	= 9,8						450-510	= 2,0	1050	10,8+0,1	
	1130-1160	= 4,0										
	1300	= 0,3-1,7										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limit Note: changed to .. rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle	⑤ Idle stop Control rod travel rev/min	④a Idle stop Control rod travel mm		
		rev/min	cm³/1000 strokes				rev/min	mm
1020	86,5-88,5 (84,5-90,5)	1090-1100*		100	min.140 (137)	325	10,0-14,0 (7,5-16,5)	4,9-5,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

BOSCH

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① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 VOL 6,0 L

4. Edition

En

PES 6 MW 100/320 RS 1004
RQV 300...1400 MW 7
0 420 083 003

supersedes 5.82
company: Volvo
engine: TD 60 B

1 - 5 - 3 - 6 - 2 - 4 jc 60°

TestOil-ISO 410

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,80-2,90

Port closing at prestroke (2,75-2,95) mm (from BDC) RW = 10,5 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,8+0,1	7,55-7,75	0,35(0,6)			
300	4,7-4,9	0,95-1,35	0,35(0,55)			
1400	9,8+0,1		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	① 18	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 10	① 11
max	1400 1650	15,2-17,8 0,0-1,0						ca.9	100 300	min.6,3 4,7-4,9	300 450 1450	1,3-1,4 2,6 8,2
ca.63	8,8 4,0	1440-1450 1530-1560						③a	390-450 = 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	② 4a	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	control rod travel mm 9
1000	75,5-77,5 (73,5-79,5)	1440-1450*	1400	79,0-83,0 (77,0-85,0)		100	120-130 (117-133)		
						300	9,5-13,5 (7,0-16,0)		
						100-230(80-250)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 VOL 6,0 m 1

4. Edition

En



PES 6 MW 100/320 RS 1004
 RQV 300 ... 1400 MW 27
 Komb.-Nr. 0 403 446 119
 1-5-3-6-2-4 = 0-60-120-180-240-300 ± 0,50° (0,75°)

supersedes 5.82
 company: Volvo
 engine: TD 60 B

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 (2,75-2,95) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
100	9,9+0,1	7,7-7,9	0,35(0,6)			
300	4,7-4,9	0,95-1,35	0,35(0,55)			
1400			0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	7	8	9	10	11	
max	1400 1650	15,2-17,8 0,0-1,0					ca.9	100 300	min.6,3 4,7-4,9			
c3.62	8,9 4,0	1440-1450 1530-1560					3a	390-450 = 2,0				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control
rev/min	cm³/1000 strokes	4a	5a	5b	6	5
1	2	3	4	5	6	7
1000	77,0-79,0 (75,0-81,0)	1440-1450*			100 300 100-230(80-250)	120,0-130,0 (117,0-133,0) 9,5-13,5 (7,0-16,0)

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

K3

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Test Specifications Fuel Injection Pumps ① and Governors



PES 6 MW 100/320 RS 1107
RQV 350-1200 MW 43-2
U 403 446 136

DHK: 1 688 901 016
207 + 3 bar

supersedes 9.83
company: IHC
engine: DT 466 B
132,4 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,10
(3,95-4,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
800	11,8+0,1	9,4-9,6	0,35(0,6)			
350	5,9-6,1	1,6-2,0	0,35(0,55)			
1200	11,8+0,1		0,65(0,7)			
500	10,4+0,1					

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	7	8	9	10	11	
Max.	8,0 1500	1355-1395 0-1,0					ca.15	100 350	min.9,0 5,9-6,1			
ca.61,5 ± 2,5	4,0	1375-1385					370-650 3a					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
2		2b	4a	5a	6	5	
rev/min	cm³/1000 strokes	3	4	5	7	8	9
LDA 800	0,9 bar 94,5-96,5 (92,5-98,5)		LDA 1200	,9 bar 96,0-100,0 (94,0-102,0)	100 350	140-180 (137-183)	
			LDA 500	0 bar 70,0-72,0 (68,0-74,0)	220-280 (210-290)	16,0-20,0 (13,5-22,5)	Locking Unlocking
					100(80)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure IHC 7,6d -2-

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-dimension mm (1)
RS 1107 mit MW 43-2	0,39		0,17 0 0,90		11,5-11,6 10,7-10,8 10,4-10,5 11,8-11,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to n = 350 1/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 IHC 7.6e
En 3. Edition

PES 6 MW 100/320 RS 1108
 RQV 350-1200 MW 43-3
 0 403 446 137
 DHK: 1 688 901 016/207+3 bar
 Fuel injection test tubing 1 680 750 008

supersedes
 company: IHC
 engine: 132,4 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,00-3,10
 Port closing at prestroke (2,95-3,15) mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,5+0,1	9,1-9,3	0,35 (0,6)			
350	6,2-6,3	1,6-2,0	0,35 (0,55)			
1200	11,5+0,1		0,65 (0,7)			
500	10,0+9,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1	
1	2	3	2a	4	5	6	7	8	9	3	10	11
max.	8,0	1360-1400					ca.17	100	min.9,0			
0-1,0	0-1,0	1450						350	6,2-6,3			
ca.60,5	4,0	1380-1390					(3a)	370-650				
± 2,5												

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel
rev/min	cm³/1000 strokes	2b	4a	5a	5b	6	5
1	2	3	4	5	6	7	Control rod travel mm
LDA	0,9 bar			LDA	0,9 bar	100	140,0-180,0
850	91,0-93,0 (89,0-95,0)			1200	93,0-97,0 (91,0-99,0)	350	(137,0-183,0)
				LDA	0 bar	220-280	16,0-20,0 (13,5-22,5)
				500	60,0-62,0 (58,0-64,0)	100	(210-290) (80)
							Locking Unlocking

Checking values in brackets

* 1 mm less control rod travel than col 2

11.85

K6

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

IHC 7,6e -2-

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm	(1)
RS 1108 mit MV 43-3	0,42	0,19 0 0,90	11,1-11,2 10,3-10,4 10,0-10,1 11,5-11,6	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to n = 350 1/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 IHC 7.6f
En 4. Edition



PES 6 MW 100/320 RS 1108
RQV 350-1300 MW 43-4
0 403 446 138
Prüfdüsenhalterkombination 1 688 901 016
Fuel injection test tubing 1 680 750 008

supersedes -
company: IHC
engine: DT 466 B
154,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,00-3,10
(2,95-3,15) mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	12,6+0,1	10,7-10,9	0,35(0,6)			
350	6,5-6,6	1,6-2,0	0,35(0,55)			
1300	12,6+0,1		0,65(0,7)			
500	9,6-9,7					

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		①	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel ① rev/min mm
1	2	3	2a	4	5	6	7	8	9	10	11	1
max.	8,0 0-1,0	1440-1505 1580					ca.16	100 350	min.9,0 6,5-6,6			
ca.61,5 ± 2,5	4,0	1500-1510					3a	370-650				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	2b	4a	5a	5b	6	7	6	5
1	2	3	4	5	6	7	8	rev/min	Control rod travel mm
LDA 900	0,9 bar 107,0-109,0 (105,0-111,0)			LDA 1300	0,9 bar 112,5-116,5 (110,5-118,5)	100	140,0-180,0 (137,0-183,0)		
				LDA 500	0 bar 53,5-55,5 (51,5-57,5)	350 220-280	16,0-20,0 (13,5-22,5)		
						100	(210-290) (80)	Locking Unlocking	

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure IHC 7,6f -2-

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution mm (1)
RS 1108 mit MW 43-4	0,27	0,57 0 0,90	10,4-10,5 11,9-12,0 9,6-9,7 12,6-12,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to n = 350 1/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 IHC 7,6 L

3. Edition

En

PES 6 MW 100/320 RS 1108
 RVQ 350-1300 MW 45
 0 403 446 140

DHK: 1 688 901 016/207 + 3 bar
 Fuel injection test tubing 1 680 750 008

supersedes 8.83
 company: IHC
 engine: DT 466 B
 143,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,10
 (2,95-3,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,7+0,1	9,55-9,75	0,35 (0,6)			
350	5,9-6,0	1,6-2,0	0,35(0,55)			
1300	11,7+0,1		0,65(0,7)			
500	9,0-9,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1	
1	2	3	2a	4	5	6	7	8	9	3	10	11
max.	8,0 0-1,0	1440-1505 1550					ca. 14	100 350	min. 9,0 5,9-6,0			
ca. 61,5 - 2,5	10,8 4,0	1360-1380 1475-1485					(3a)		380-700			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel		
rev/min		2b	4a	5a high idle speed	6	5 Control rod travel mm		
1	2	3	4	5	6	7	8	9
LDA 900	0,9 bar 95,5-97,5 (93,5-99,5)	1360-1380 *	LDA 1300 LDA 500	0,9 bar 99,5-103,5 (97,5-105,5) 0 bar 52,5-54,5 (50,5-56,5)	100 305 100-220(80-210)	140,0-180,0 (137,0-183,0) 16,0-20,0 (13,5-22,5)		

Checking values in brackets

* 1 mm less control rod travel than col 2

11.85

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D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$

500

rev/min decreasing pressure - in bar gauge pressure
increasing

IHC 7,6 L

-2-

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1108 mit MW 45	0,20	0,57 0 0,90	9,5-9,6 11,1-11,4 9,0-9,1 11,7-11,8

Notes:

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than $n = 500$ 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to $n = 350$ 1/min; increase engine speed to $n = 1000$ 1/min; then operate at idle $n = 350$ 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP UU1/4 VOL 6,0 r

3. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1111
RSV 325-1400 MW 2 A 314
0 403 476 016

supersedes 4.85
company Volvo
engine TAMD 60 C
184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,10-3,20

Port closing at prestroke (3,05-3,25)

mm (from BDC) RW = 9,0-12,0

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	13,0-0,1	12,1-12,3	0,35 (0,6)			
325	5,7-5,8	0,95-1,35	0,35(0,55)			
1400	13,0+0,1					
1000	10,5+0,1		0,5((0,7))			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min	③ Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-1,0 $x = 2,75$				ca.22	325	5,1-5,2	350	13,5+0,1
							325	5,6-5,7		
ca.60 ②a	1440-1450 = 12,0 1505-1535 = 4,0					100	min.19,0	500	13,0+0,1	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load step Test oil temp 40°C (104°F)		⑥ Rotational-speed limitat Note changed to 1 rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle	⑤ Idle stop	④a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8
LDA 1000	0,8 bar 121,0-123,0 (119,0-125,0)	1440-1450*	LDA 1400 LDA 1000	0,8 bar 120,0-124,0 (118,0-126,0) 0 bar 83,0-85,0 (81,0-87,0)	100 (127,0-143,0) 325 9,5-13,5 (7,0-16,0)	325 130,0-140,0 (127,0-143,0) 100 130,0-140,0 (127,0-143,0)	5,6-5,7 5,6-5,7 5,6-5,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

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D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500

rev/min decreasing pressure - in bar gauge pressure
increasing

VOL 6.0r

-2-

Pump/governor	Setting	Measurement		Control rod travel- difference (1)	diminution difference
		Gauge pressure =	bar		
RS 1111 mit RSV.....314	0,3	0,53 0 0,80		10,7-10,8 12,7-13,0 10,5-10,6 13,5-13,1	

Notes

(1) when $n =$

**rev/min and
gauge pressure =**

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 IHC 7,6 n

2. Edition

En



PES 6 MW 100/320 RS 1112
 RQV 350-1300 MW 46
 0 403 446 141
 DHK 1 688 901 016/207 + 3 bar
 Fuel injection test tubing 1 680 750 008

supersedes 9.83
 IHC
 company DTI-466 C
 engine 154,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,00-4,10
 (3,95-4,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	10,5+0,1	10,3-10,5	0,35 (0,6)			
350	5,4-5,5	1,8-2,2	0,35(0,55)			
1300	10,5+0,1		0,65(0,6)			
500	8,4+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	4a	7	8	9	3a	10	11
max.	8,0 0-1	1440-1505 1600	ca. 20 ± 2,5	5 2,0	595-605	ca. 14	100 350	min. 9,0 5,4-5,5					
ca. 47,5 ± 2,5	4,0	1470-1480							390-450				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	5	rev/min	cm³/1000 strokes	rev/min	control rod travel mm
1	2	3	4	4	5	6	7	8	9
LDA 900	0,9 bar 103,0-105,0 (101,0-107,0)			LDA 1300	0,9 bar 107,0-111,0 (105,0-113,0)	100	RW 19-21 140-180 (137-183)		
				LDA 500	0 bar 63,5-65,5 (61,5-67,5)	350	18,0-22,0 (15,5-24,5)		
						220-280 (210-290)			
						100 (80)			
								Locking Unlocking	

Checking values in brackets

* 1 mm less control rod travel than col 2

11.85

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ 500 rev/min decreasing pressure - in bar gauge pressure increasing

IHC 7,6n -2-

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- mm	diminution difference (1)
RS 1112 mit MW 46	0,28		0,51 0 0,90		9,0-9,1 9,9-10,2 8,4-8,5 10,5-10,6	

Notes

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than $n = 500$ 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to $n = 350$ 1/min; increase engine speed to $n = 1000$ 1/min; then operate at idle $n = 350$ 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 IHC 7,6r

1. Edition

En

PES 6 MW 100/320 RS 1112
RQV 350-1200 MW 46-3
0 403 446 163
DHK: 1 688 901 016/207 + 3 bar
Fuel injection test tubing 1 680 750 008

supersedes
company IHC
engine DTA-466 C
179 kW



All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,95-4,05
(3,90-4,10) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
800	12,4+0,1	11,9-12,1	0,35(0,6)			
350	6,2-6,3	1,8-2,2	0,35(0,55)			
1200	12,4+0,1		0,65(0,7)			
500	10,7+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Intermediate rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	4	Lower rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel ① re in mm
1	2	3	2a	4	5	6	7	8	9	10	11	
max.	8,0 0-1	1355-1395 1500						ca. 12	100 350	min. 9,0 6,2-6,3		
ca. 495 ± 2,5	11,4 4,0	1260-1270 1370-1380						300-450 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	2	Rotational-speed limitation intermediate speed rev/min	2b 4a	Fuel delivery characteristics high idle speed ⑤b rev/min	5a 5	Starting fuel delivery Idle switching point rev/min	6	Torque-control travel Control rod travel mm	5
1	2	3	4	5	6	7	8	9	
LDA 800	0,9 bar 119,0-121,0 (116,5-123,5)	1260-1270*	LDA 1200 LDA 500	0,9 bar 121,5-125,5 (119,5-127,5) 0 bar 86,5-88,5 (84,5-90,5)	100 350 220-280 100	140,0-180,0 (137,0-183,0) 18,0-22,0 (15,5-24,5) (210-290) (80)		Locking Unlocking	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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D. Adjustment Test for Manifold Pressure Compensator

IHC 7,6r -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel: diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
RS 1112 mit MW 46-3	0	0,22 0,44 0,90	10,7-10,8 11,1-11,2 12,0-12,1 12,4-12,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve position, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- High idle n = 1375 1/min. 21.0 - 29.0 cm³ / 1000 strokes, (20.0 - 30.0 cm³/1000 strokes) 0.9 bar.

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 IHC 7,6r1

1. Edition

En



PES 6 MW 100/320 RS 1112
 RQV 350-1200 MW 64
 0 403 446 160
 DHK: 1 688 901 016/207 + 3 bar
 Fuel injection test tubing 1 680 750 008

supersedes
 company IHC
 engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,95-4,05 (3,90-4,10) mm (from BDC) RW = 9 - 12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
800	11,7+0,1	10,6-10,8	0,35(0,6)			
350	5,9-6,0	1,8-2,2	0,35(0,55)			
1200	10,9+0,1		0,65(0,7)			
500	10,6+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	Sliding sleeve travel ① rev/min mm
1	2	3	②a	4	5	6	④	7	8	9	③	10 11
max.	8,0	1355-1395						ca. 11	100	min. 9,0		
	0-1	1450							350	5,9-6,0		
ca. 45,5 - 2,5	9,9 4,0	1245-1255 1340-1350								370-450		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	6	Torque-control travel
rev/min	cm³/1000 strokes	②b	④a	⑤a	⑥	⑤	Control rod travel mm
1	2	3	4	5	6	8	9
LDA	0,8 bar			LDA	0,8 bar	100	11,7+0,1
800	106,0-108,0 (104,0-110,0)	1245-1255 *		1200	101,0-103,0 (99,0-105,0)	(137,0-183,0)	1200 10,9+0,1
				LDA	0 bar	350 18,0-22,0	1000 11,7+0,1
				500	84,0-86,0 (82,0-88,0)	(15,5-24,5)	1150 10,9+0,1
						100-220 (80-210)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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K18

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure IHC 7,6ri

-2-

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel: mm (1)	diminution difference
RS 1112 mit MW 64	0,23		0,35		10,9-11,0	
			0		11,3-11,6	
			0,80		10,6-10,7	
					11,7-11,8	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to n = 350 1/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7 t 1

3. Edition

En



PE 8 MW 100/720 LS 1117
RQ 300/1000 MW 52
0 403 548 005
1-8-7-2-6-5-4-3 je 45°

supersedes 1.85
company KHD
engine F 8 L 413 F
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,10-3,20

Port closing at prestroke

(3,05-3,25)

mm (from BDC)

RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,4+0,1	10,1-10,3	0,35(0,6)			
	8,2-8,3	1,1-1,5	0,35(0,55)			
	11,3+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Setting point rev/min 6	Control rod travel mm 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Control rod travel rev/min 11	Control rod travel mm 12
520	19,2-20,8	520	20,0	10,3	1045-1060	300	8,2	100	min. 10,2	600	12,4-12,5
1200	0-1,0			4,0	1080-1110			300	8,2-8,3	1000	11,3-11,4
										650	12,4-12,5
										975	11,3-11,4

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At rev/min 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min 3	Fuel delivery characteristics		Starting fuel delivery Idle speed rev/min 6	Control rod travel cm³/1000 strokes / mm 7
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / mm 7
600	101,0-103,0 (99,0-105,0)		1000	91,0-93,0 (88,5-95,5)	100	130,0-140,0 (127,0-143,0)
					300	11,0-15,0 (8,5-17,5)
					100-230 (80-250)	

Checking values in brackets

12.85

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(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 KHD 12,7 t

3. Edition

En

Test Oil ISO 4119

PE 8 MW 100/720 LS 1117
RQ 300/1000 MW 52-1
0 403 548 009
1-8-7-2-6-5-4-3 je 45°

supersedes 1.85
company: KHD
engine F 8 L 413 FZ
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,05-3,25) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	
650	12,6+0,1	10,6-10,8	0,35(0,6)			
300	8,1-8,2	1,1-1,5	0,35(0,55)			
1150	12,6+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel rev/min	Full-load speed regulation				Idle speed regulation				Torque control Control rod travel rev/min	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	9	10		
1	2	3	4	5	6	7	8	9	10	11	12
550	19,2-20,8	550	20,0	10,4	1195-1210	300	8,1	100	min. 9,7	650	12,6-12,7
1350	0-1,0				4,0	1270-1300		300	8,1-8,2	1150	11,4-11,5
								350-380 = 2,0		850	12,0-12,4

Torque-control travel on flyweight assembly dimension a = mm 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	4	5	6	7	
650	106,0-108,0 (104,0-110,0)		1150	96,0-98,0 (93,5-100,5)	100	130,0-140,0 (127,0-143,0)
					300	11,0-15,0 (8,5-17,5)
					100-230 (80-250)	

Checking values in brackets

12.85

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7 t 2

3. Edition

En



PE 8 MW 100/720 LS 1117
RQ 300/1150 MW 53
0 403 548 006
1- 8- 7- 2- 6- 5- 4- 3
0-45-90-135-180-225-270-315

supersedes 1.85

company KHD

engine BF 8 L 413 FZT
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,10-3,20

Port closing at prestroke (3,05-3,25)

mm (from BDC)

RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strok. s	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
800	13,3+0,1	12,3-12,5	0,35(0,6)			
300	7,5-7,6	1,1-1,5	0,35(0,55)			
1150	12,3+0,1		0,5(0,7)			
400	12,4+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Full-load speed regulation						Idle speed regulation						Torque control	
	Control rod travel mm	Setting point rev/min	Control rod travel mm		Test specifications rev/min		Control rod travel mm	Setting point rev/min	Control rod travel mm		Test specifications rev/min		Control rod travel mm	Control rod travel mm
			1	3	4	5			7	8	9	10		
	600	19,2-20,8	600	20,0	11,3	1195-1210	300	7,5	100	min.9,1	800	13,3-13,4		
						1230-1260			300	7,5-7,6	1150	12,3-12,4		
	1350	0-1,0									650	13,3-13,4		

Torque-control travel
on flyweight assembly dimension a = mm 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel mm
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	4	5	rev/min	cm³/1000 strokes / mm	
LDA	0,8 bar			LDA	1150	0,8 bar	100	140,0-150,0	
800	123,5-125,5 (121,5-127,5)			LDA	400	118,0-120,0 (115,5-122,5)	300	(137,0-153,0)	
						0 bar		11,0-15,0	
						96,0-98,0		(8,5-17,5)	
						(93,5-100,5)		(80-250)	
							100-230		

Checking values in brackets

12.85

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K22

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure KHD 12,7t -2-

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel mm (1)	diminution difference
LS 1117 mit MW 53	0,8	0,19 0,13 0	13,3-13,4 13,0-13,1 12,6-12,7 12,4-12,5	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 13,4d1 40

1. Edition

En

Testo-ISO

PE & MW 100/720 LS 1117
RQV 425-900 MW 66
0 403 548 013
1-8-7-2-6-5-4-3 je 45°

supersedes -
company KHD
engine F S L 513 0 PT.
153 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,10-3,20

Port closing at prestroke

(3,05-3,25)

mm (from BDC)

RW = 9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,1+0,1	10,7-10,9	0,35(0,6)			
	5,0-5,1	1,3-1,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	1a Degree of deflection of control lever 2a 1-8-7-2-6-5-4-3	rev/min 4	Control rod travel mm 5	4 Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	3 rev/min 10	1 mm 11
max	900 1150	15,2-17,8 0-1,0				ca.22	425 100	5,0-5,1 min.7,5		
ca.31	10,1 4,5	940-950 980-1010				450-750 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥	Torque-control travel ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	rev/min 8	Control rod travel mm 9
900	107,0-109,0 (105,0-111,0)	940-950 *	550	108,0-110,0 (106,0-112,0)	100 425	130,0-140,0 (127,0-143,0) 13,0-17,0 (11,0-20,0)	900 550 700 11,7+0,1 11,6+0,1 11,3+0,2

Checking values in brackets

Note: Test elec. unlocked starting fuel delivery (EES) with 24 Volts.

* 1 mm less control rod travel than col 2

12.85

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K24

(2)

Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 KHD 13,4d

2. Edition

En



PE 8 MW 100/720 LS 1117
RQ 300/1075 MW 53-1
U 403 548 008
1-8-7-2-6-5-4-3 je 45°

supersedes 10.84
company KHD
engine BF 8 L 513 T
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20
(3,05-3,25) mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	13,4+0,1	12,3-12,5	0,35(0,6)			
300	8,0-8,1	1,6-2,0	0,35(0,55)			
1075	12,1+0,1		0,5(0,7)			
400	12,6+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Full-load speed regulation					Idle speed regulation					Torque control	
	Control rod travel mm	Setting point		Test specifications		Control rod travel mm	Setting point		Test specifications		Control rod travel mm	Control rod travel mm
		rev/min	rev/min	Control rod travel mm	Control rod travel mm		rev/min	rev/min	Control rod travel mm	Control rod travel mm		
550	19,2-20,8	550	20,0	11,1 4,0	1120-1135 1155-1185				100 300	min. 9,6 8,0-8,1	600 640 950 1075	13,4-13,5 13,4-13,5 12,1-12,2 12,1-12,2
1250	0-1,0											

Torque control travel
on flyweight assembly dimension a = 0,45 mm 1 mm less control rod travel

Speed regulation: A1

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel mm	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	rev/min	cm³/1000 strokes/mm	rev/min
LDA 600	0,8 bar 123,5-125,5 (121,5-127,5)			LDA 1075	0,8 bar 114,0-116,0 (111,5-118,5)	100	140,0-150,0 (137,0-153,0)			
				LDA 400	0 bar 96,0-98,0 (93,5-100,5)	300	16,0-20,0 (13,5-22,5)	100-230 (80-250)		

Checking values in brackets

12.85

D. Adjustment Test for Manifold Pressure Compensator

Test at

500

rev/min decreasing pressure - in bar gauge pressure
increasing

KHD 13,4d

-2-

Pump/governor	Setting	Measurement	Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
LS 1117 mit MW 53-1	0	0,8 0,25 0,19	12,6-12,7 13,4-13,5 13,2-13,3 12,8-12,9

Notes

(1) when $n =$

**rev/min and
gauge pressure =**

bar (= maximum full-load control rod travel)

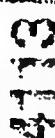
① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD13,4 a

3. Edition

En

 PE 8 MW 100/720 LS 1118
 RQV 300-1150 MW 56
 D 403 548 007
 1-8-7-2-6-5-4-3 je 45°

supersedes 10.84

company: KHD

engine: BF 8 L 513
222 kW**Testoil ISO**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20
(3,05-3,025) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	14,2+0,1	13,3-13,5	0,35(0,6)			
300	8,7-8,8	1,6-2,0	0,35(0,55)			
1150	13,6+0,1		0,5(0,7)			
450	13,2+0,1					

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		①	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel ① rev/min mm
1	2	3	2a	4	5	6	7	8	9	10	11	1
max.	1175	15,2-17,8					ca.22	300	6,7-6,8			
	1400	0-1,0										
ca. 55	12,6	1190-1200					320-650					
	4,0	1300-1330					3a					
Torque control travel a = mm												

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥	Torque-control travel ⑤			
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	8	9
1	2	3	4	5	6	7	8	9	
LDA	0,8 bar	1190-1200*	LDA	0,8 bar	100	140,0-150,0	700	14,2+0,1	
700	133,0-135,0	(131,0-137,0)	1150	129,0-131,0	(137,0-153,0)	(137,0-153,0)	1150	13,6+0,1	
			LDA	(126,5-133,5)	300	16,0-20,0	750	14,2+0,1	
			450	0 bar	(13,5-22,5)	(13,5-22,5)	1100	13,6+0,1	
				104,0-106,0	100-230(80-250)				
				(101,5-108,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

12.85

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure KHD 13,4a -2-

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
LS 1118 mit MW 56	0,36	0,26 0 0,80	13,9-14,0 13,4-13,7 13,2-13,3 14,2-14,5

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 6,1n6

1. Edition

En



PES 6 MW 100/720 RS 1133
RQ 300/1325 MW 65
0 403 446 166
1-5-3-6-2-4 je 60°

supersedes

company

KHD

engine BF 6 L 913 BW
124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,50-3,60

Port closing at prestroke (3,45-3,65)

mm (from BDC)

RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1325	10,5+0,1	9,6-9,8	0,35(0,6)			
300	7,6-7,7	1,0-1,4	0,35(0,5)			
850	10,5+0,1		0,35(0,7)			
500	9,1-9,2					

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel	Setting point	Control rod travel	Setting point	Control rod travel	Setting point	Control rod travel	Setting point	Control rod travel	Setting point	Control rod travel
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
700	19,2-20,8	700	20,0	9,5 4,0	1375-1385 1445-1475			100 300	min.8,2 7,6-7,7		
1550	0,1-1,0								320-450		

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	7
LDA	0,7 bar	100	LDA	0,7 bar	100	120,0-140,0
1325	96,0-98,0 (94,0-100,0)		850	87,0-91,0 (85,0-93,0)		(117,0-143,0)
			LDA	0 bar	300	10,0-14,0
			500	47,0-49,0 (45,0-51,0)		(8,0-16,0)

Checking values in brackets

12.85

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing pressure - in bar gauge pressure KHD 6,1n6 -2-

Fump/governor	Setting	Measurement	Control rod travel diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
RS 1133 mit RQ..MW 65	0,45	0,35 0 0,70	10,2-10,3 9,3-9,6 9,1-9,2 10,5-10,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Note: Test elec. unlocked starting fuel delivery (EES) with 24 Volts.

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 IHC7,6 r7
En 1. Edition

PES 6 MW 100/320 RS 1134
 RQV 350-1200 MW 46-1
 0 403 446 161
 DHK: 1 688 901 016/207+3 bar
 Fuel injection test tubing 1 680 750 008

supersedes _____
 company: IHC
 engine: DTA 466 (I)
 172 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,95-3,05
 (2,90-3,10) mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
800	13,2+0,1	12,05-12,25	0,35(0,6)			
350	6,8-6,9	1,8-2,2	0,35(0,55)			
1200	13,2+0,1		0,65(0,7)			
500	10,2+0,1					

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		① 1	
Degree of deflection of control lever	rev/min	Control rod travel mm	① 18	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 3	
1	2	3	② 2a	4	5	6	⑤ 4	7	8	9	⑥ 3	① 1
max.	8,0 0-1	1355 1460						ca.13	100 350	min.9,0 6,8-6,9		
ca.47,5 ± 2,5	12,2 4,0	1250-1260 1395-1405						370-500				
							⑦ 3a					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	② 2b	④ 4a	⑤ 5a	⑥ 6	⑤ 5
1	2			⑤ 5b	⑥ 6	⑦ 7
LDA	0,7 bar			LDA	100	140-180
800	120,5-122,5 (118,5-124,5)	1250-1260*		1200	125,5-129,5 (123,5-131,5)	(137-183)
				LDA	0bar	18,0-22,0
				500	65,5-67,5 (63,5-69,5)	(15,5-24,5)
					100-220	(80-210)

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

IHC 7,6r7

-2-

Pump/governor	Setting	Measurement	Control rod travel: mm	diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar		
RS 1134 mit MW 46-1	0	0,24 0,52 0,70	10,2-10,3 10,9-11,0 12,5-12,6 13,2-13,3	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to n = 350 1/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 IHC 7,6x6
En 1. Edition

Testoil ISO 4111

PES 6 MW 100/320 RS 1134
RQV 350-1200 MW 46-2
O 403 446 162
DHK: 1 688 901 016/207+3 bar
Fuel injection test tubing 1 680 750 008

supersedes:
company: IHC
engine: DTA 466 C
156 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,95-3,05 mm (from BDC)
• (2,90-3,10)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	12,2+0,1	10,6-10,8	0,35(0,6)			
350	6,3-6,4	1,8-2,2	0,35(0,55)			
1200	12,2+0,1		0,65(0,7)			
500	10,0+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1	
Degree of deflection of control lever	rev/min	Control rod travel	1a	Degree of deflection of control lever	rev/min	Control rod travel	4	Degree of deflection of control lever	rev/min	Control rod travel	3	Sliding sleeve travel
1	2	mm	2a	4	5	mm	4	7	8	mm	10	11
max.	8,0 0-1	1355-1395 1460						ca.17	100 350	min 19 6,3-6,4		
ca.48,5 ± 2,5	11,2 4,0	1255-1265 1370-1380						370-500 3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed 5a 5b		Starting fuel delivery idle switching point		Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	6	Control rod travel
1	2	3	4	5	6	7	mm
LDA 800	0,8 bar 106,0-108,0 (104,0-110,0)	1255-1265*	LDA 1200	0,8 bar 110,5-114,5 108,5-116,5	100	140-180 137-183)	
			LDA 500	0 bar 67,5-69,5 65,5-71,5	350	18,0-22,0 15,5-24,5)	
					220-280 (210-280)		Locking Unlocking
					100 (80)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500

rev/min decreasing pressure - in bar gauge pressure
increasing

IHC 7,6r6

-2-

Pump/governor	Setting	Measurement		Control rod travel- difference (1)	diminution difference
		Gauge pressure =	bar		
RS 1134 mit MW 46-2	0,24		0,45 0 0,80	10,5-10,6 11,6-11,9 10,0-10,1 12,2-12,3	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 - 2.0 mm before shutoff.
- Checking freedom of movement of control rod:
with idle set to n = 350 1/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 FIA 13,8 v

1. Edition

En

PE 6 P 120 A 720 RS 167 RSV 350-750 P 7/377 R

Komb.-Nr. 9 400 097 201

Values only apply to test nozzle-and-holder assembly

0 681 443 022 and fuel-injection test tubing 1 680 750 026

supersedes -
company Fiat
engine 8210

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
730	11,8+0,1	16,4-16,6	0,6 (1,05)			

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever	Intermediate rated speed		④ Control-lever deflection in degrees	Lower rated speed		③ Torque control rev/min	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min		rev/min	Control rod travel mm		
ca. 48	750	16,0	ca. 27	350	7,5	730	0
	780	11,6		350	7,3-7,7	500	0
	810	6,2		380	4,4-6,2	400	1,2-1,8
	800	5,6-10,0		430	0,7-3,0		
	830	3,0-5,8		500	0-1,0		
	860	0,6-2,8					
(2a)	910	0-1,0					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min cm³/1000 strokes	⑤ Idle stop Control rod travel mm	④a Idle stop Control rod travel mm
rev/min 1 730	cm³/1000 strokes 2 164,0-166,0 (160,0-170,0)	3 - 4 - 5 -	6 100 7 270,0-300,0 =19,0-21,0 mm RW	8 - 9 -	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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1.86

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 39,8 b

3. Edition

Testoil-ISO 4113

(1) PE 6 P 120 A 300/3 LS 267	supersedes	7.83
(2) PE 6 P 120 A 320 LS 268 RSUV 300-750 P 9 A 332/1 R	company	Südbremse
(3) PE 6 P 120 A 300 LS 330	engine	D/TD/TBD 602 V 12
1 - 5 - 3 - 4 - 2 - 6 (1)		TBD 602 V 12 S
0 - 15 - 120-135-240-255 ± 0,5° (-0,75°)/0 - 15 - 120-135-240-255 ± 0,5° (+ 0,75°)		

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 806 046 (1)
 0 401 876 214 (2)
 0 401 816 052 (3)

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 - 2,4
 (2,25-2,45) mm (from BDC) RW = 21,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,0+0,1	26,0 - 26,4 (25,7 - 26,2)	0,5 (0,9)			
300	5,5-5,7	2,6 - 3,2	0,8 (1,2)			

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 074.

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca.29	300	5,1	700	13,0+0,
	X =	5,25					100		325	14,2+0,6
(5)	12,0	790 - 800				300	5,5-5,7	315-375=2,0 mm	450	13,0+0,
	4,0	815 - 845					315-375=2,0 mm			
	980	0,3 - 1,7								

The numbers denote the sequence of the tests

without (1 u. 3) and

C. Settings for Fuel Injection Pump With Fitted Governor

(2)

② Full-load stop Test oil temp. 40°C (104°F) rev/min	⑥ Rotational-speed limitat. Note: changed to rev/min	③ Fuel delivery characteristics rev/min	Starting rev/min	⑤a) Idle stop Control rod travel mm
1	2	3	6	8
		4	5	7

The full-load delivery is adjusted on the engine in accordance with the engine inspection sheet. Pumps (1) and (2) or (1) and (3) operate in tandem.

Checking values in brackets

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 VOL 10,0 f 2

3. Edition

En

PE 6 P 110 A 320 RS 273 Y RQV 250-1100 PA 238/2 R
..RS 273-1 Y
0 401 846 379

supersedes 7.83
company: Volvo
engine TD 100 B
220 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6 - 2,7$
($2,55-2,75$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	10,0+0,1	14,8 - 15,1	0,4(0,8)			$2,5 \pm 0,1$ ($2,2 - 2,9$)
	5,1-5,3	1,1 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1260	15,2-17,8		-	-	-		ca.11	100	min.6,6	350	1,7-2,3	
ca.40	9,0	1140-1150							250	5,1-5,3	600	3,7-4,3	
	4,0	1225-1255							310-370=2,0 mm		1290	8,8	
	1350	0 - 1,0											

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm³/1000 strokes	rev/min	②b	rev/min	cm³/1000 strokes	rev/min	MM RW	⑤	travel
1	2	3	④b	4	5	6	X X X X X X X X X X X X X X	⑥	Control rod travel mm
LDA 700	0,7 bar 147,5 - 150,5 (145,0 - 153,0)	1140-1150*		LDA 700	0 bar 111,0-115,0 (108,0-118,0)	100	20,5-21,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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12.85

D. Adjustment Test for Manifold Pressure Compensator VOL 10,0 f 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	decreasing pressure - in bar gauge pressure		increasing										
	Gauge pressure =		bar		Gauge pressure =		bar	mm					
PE6P..RS 273 Y + ..PA 238/2R	0,7						mm	(1)					

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 40,5 f

1. Edition

PE 8 P 130 A 920/5 RS 293-2 RS 250/1000 P 1 A 422 R :

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 -75 -90 -120-210-225-315-345° \pm 0,5° (\pm 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

En supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 117

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)

mm (from BDG) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,5+0,1	35,8-36,1	0,6(1,0)			
250	6,1-6,3	2,0-2,6	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	
loose	800	0,3-1,0	-	-	-	FH ca.23	250	6,2	1000 13,5-13,6
VH ca.5	X = 5,0						400-460	2,0	420 14,7-15,3
FH max.	12,5	1040-1050							600 13,5-13,6
(2a)	4,0	1095-1125							
	1260	0,3-1,4							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)	rev/min	cm³/1000 strokes	6 Rotational-speed limitat Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle rev/min	5 cm³/1000 strokes	4a Idle stop Control rod travel mm
				4	5 cm³/1000 strokes			
Carry out adjustment on engine		1040-1050*		-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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2.86

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 a

2. Edition

PE 12 P 120 A 920/5 RS 294 RSVU 300-750 P 9 A 322 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 6.83

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 049

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,1-20,3	0,5(0,9)	0,65(0,95)		
300	5,8-6,0	1,0-1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10	② Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-1,0	-	-	-	ca. 31	300	7,5	750	12,0-12,1
	X = 4,0						300	7,9-8,1	450	12,0-12,1
(2a)	11,0	770-780					340-400=2,0		325	13,2-13,8
	4,0	810-840								
	950	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤	④a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
Not known. Carry out adjustment on engine	770-780*	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 KHD 30,4f
2. Edition

En

PE12 P120 A920 RS 294

RSUV 300-1000 POA 348 R

supersedes 6.85

KHD

company BA 12 M 816

engine Komb.-Nr. 0 401 870 067

1-10-5-7-2-11-6-8-3-12-4-9- je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

TESTISO 41

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,10
(1,95-2,15) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2-2,8	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
loose	800 0,3-1,0 X=1,0	- - -	ca. 18	300 5,9	1000 14,9-15,0	
ca. 60	13,9 1040-1050 4,0 1060-1090 2a 1190 0,3-1,7			300 6,3-6,5 325-385 = 2,0	270 16,2-16,8 400 14,9-15,0	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat. Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
Not known. Carry out adjustment on engine	1040-1050*	-	-			100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 d

2. Edition

PE 12 P 120 A 920 RS 294 RS 250/1000 P 1/422 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 6.83

KHD

company BA 12 M 816

engine Komb.-Nr. 0 401 870 060

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings



2,0-2,1
(1,95-2,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	29,5-29,9	0,5(0,8)			
300	6,0-6,2	2,0-2,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
loose	800 0,3-1,0	- - -	ca. 22	250 6,1	1000 14,9-15,0	
	X = 5,0			250 6,0-6,2	420 16,2-16,8	
ca. 58	13,9 1040-1050			430-490=2,0	550 14,9-15,0	
2a	4,0 1120-1150					
	1250 0,3-1,7		150-200			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
	Not known. Carry out adjustment on engine		1040-1050*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 k

1. Edition

En

PE T2 P 130 A 920 RS 294-1 RSUV 300-600 P 8 A 322 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 076

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	13,5+0,1	35,8-36,1	0,6(1,0)			
300	6,1-6,3	2,0-2,6	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	
loose	800	0,3-1,0 $X = 4,0$	-	-	-	ca. 30	300	5,7	600
							300	6,1-6,3	
ca. 65 ②a	12,5 4,0 820	640-650 655-685 0,3-1,7					310-370=2,0		220 350

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limitat Note changed to) rev/min	③a Fuel delivery characteristics		Starting fuel delivery idle	⑤	④a Idle stop	
rev/min	cm³/1000 strokes	3	4	5	6	7	8	Control rod travel mm
	Not known. Carry out adjustment on engine	640-650*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

WPP 001/4 KHD 15,2 c

2. Edition

En

PE 6 P 120 A 420 LS 324 RS 250/1000 P 1/422 R

supersedes 6.83

company KHD

engine BA 6 M 816

Komb.-Nr. 0 401 876 221, 0 401 876 217

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	29,5-29,9	0,5(0,9)			
250	6,0-6,2	2,0-2,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min	Control rod travel mm 10
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9		
loose	800	0,3-1,0	-	-	-		250	6,1	1000	14,9-15,0
	x = 5,0						250-310	= 2,0	420	16,2-16,8
ca. 58									550	14,9-15,0
FH voll	13,9	1040-1050				150-200				
②a	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to) rev/min	③a Fuel delivery characteristics rev/min	Starting fuel delivery Idle rev/min	⑤ cm³/1000 strokes	④a Idle stop Control rod travel mm 8
1	2	3	4	5	9
Not known. Carry out adjustment on engine	1040-1050*	-	-	100	19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.86

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 15,2 b

2. Edition

En

PE 6 P 120 A 420 LS 324

RSV 250-1000 P7A 304 R

supersedes 6.83

Komb.-Nr. 0 401 876 226

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

company KHD

engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	29,5-29,9	0,5 (0,9) 0,8 (1,2)			
250	6,0-6,2	2,0-2,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,6	1000	14,9-15,0	
	X = 5,5						250	6,0-6,2		300	16,2-16,8
(2a)	13,9	1040-1050					345-405	= 2,0	450	14,9-15,0	
	4,0	1080-1110									
	1250	0,3-1,4									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	4	5	6	7	8	9	
	Not known. Carry out adjustment on engine	1040-1050*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.86

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Test Specifications

Fuel Injection Pumps ①A

and Governors

40

WPP 001/4 DAF 11,6 K 18

1. Edition

En

PE 6 P 110 A 320 RS 372-1

RSV 250-1100 P 5 A 508-3

Komb.-Nr. 0 401 876 308

supersedes
DAF
company DKTD 1160
engine 191 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
850	12,0+0,1	13,7-13,9	0,4(0,75)			
250	6,6-6,8	0,7-1,2	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

① Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-0,7	-	-	-	ca. 21	250	6,2	850	12,2-12,3
	x = 4,25						250	6,6-6,8	400	12,2-12,4
ca. 51	11,0	1140-1150					655-715	= 2,0	300	12,5-13,0
②a	4,0	1275-1305								
	1425	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note changed to rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle	⑤ Idle stop	④a Idle stop	
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
LDA 850	0,7 bar 137,0-139,0 134,5-141,5)	1140-1150*	LDA 600	0 bar 128,0-130,0 (125,5-132,5)	100	245,0-285 (241,0-289,0)	0	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 K 18

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel: diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE 6P..RS 372-1 + RSV..P5A 508-3	0,70	0 0,30 0,26	12,0-12,1 11,4-11,5 11,8-11,9 11,5-11,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 15,2 e

2. Edition

PE 6 P 120 A 420 LS 399 RSV 250-1000 P / A 460

Komb.-N. 0 401 876 236

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 6.83
KHD
company BA 6 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	29,5-29,9 (29,3-30,1)	0,5(0,9)			
250	6,0-6,2	2,0-2,6 (1,7-2,9)	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 $x = 5,75$		-	-	-	ca. 24	250	5,6	1000	14,9-15,0
	ca. 67	13,9 1040-1050 4,0 1080-1110 1250 0,3-1,4					250	6,0-6,2	300	16,2-16,8
							345-405=2,0		450	14,9-15,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limitat Note changed to ; rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle rev/min	5 Idle stop rev/min	4a Control rod travel mm
rev/min 1	cm³/1000 strokes 2	3	rev/min 4	cm³/1000 strokes 5	6	7	8
LDA	0,7 bar	1040-1050*	-	-	100	19,5-21,0 mm RW	-
Not known. Carry out adjustment on engine							

Checking values in brackets

* 1 mm less control rod travel than col 2

3.86

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